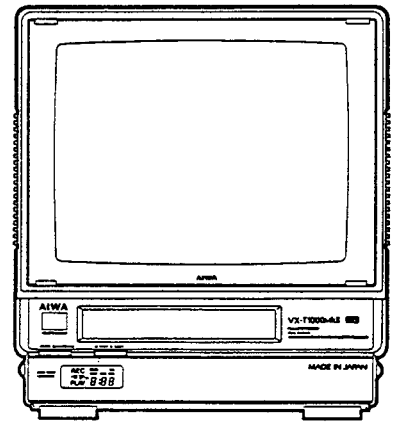
S/M Code No.90 – 034 DATE OF ISSUE 12/1990 – F

AIWA®

VX-T1000MK II

SERVICE MANUAL



COLOR TV/VIDEO CASSETTE RECORDER

• BASIC VIDEO MECHANISM : TN-5900

• TYPE. SH,AE,KE

SPECIFICATIONS

GENERAL SPECIFICATIONS

CRT:	14 inch in-line gun, 90° deflection tube
Television system:	PAL B/G, SECAM B/G
VCR video signal:	PAL, MESECAM, NTSC4.43(PLAY)
Recording system:	Rotary two-head helical scan system
Tuner channel:	(VHF)2~12ch, (UHF)21~69ch
Preset channel:	16 stations
Recording/Playback time:	Max. 4 hours (E-240 tape)
Tape width:	1/2 inch
Tape speed:	23.39mm/sec.
Terminals:	
Aerial input	75 ohm IEC connector
Video input	BNC connector
Audio input	RCA connector

ELECTRICAL SPECIFICATIONS

Video input level:	0.5~2.0V_{p-p}
Audio input level:	-15dBs
Video S/N:	43dB
Audio S/N:	41dB
Audio output power:	0.8W

OTHER SPECIFICATIONS

Operating temperature:	5°C~40°C
Power requirement:	127/220V,50/60Hz switchable
Power consumption:	85W
Dimensions:	362(W) x 366(D) x 399(H) mm
Weight:	13.5Kg
Accesories:	Remote control handset
	2-AA(IEC R06) batteries for remote
	Operating instructions
	Rabbit ear antenna for VHF
	Matching pad
	Service facility list

* **Design and specifications are subject to change without notice.**

AIWA Co., Ltd.

Tokyo Japan

Printed in Japan

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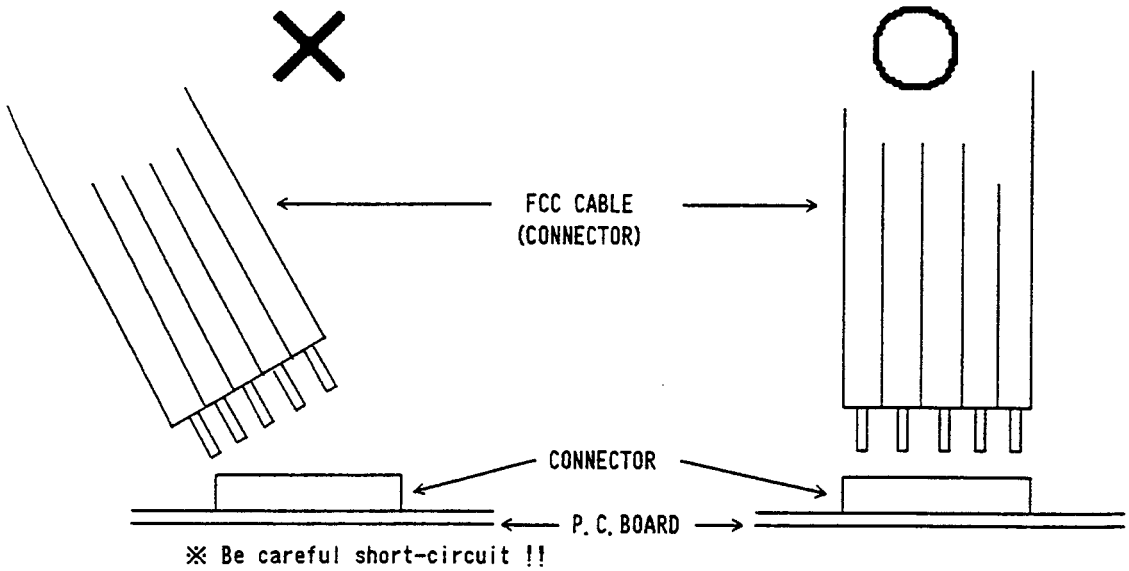
CAUTION



1. When you connect or disconnect FFC cable(connector), please make sure the AC cord of the set is disconnected. (Not in a POWER OFF position.)

2. FCC cable(connector) should be inserted palallel into the connector, not aslant.

[VCR SECTION]

PRACTICAL SERVICE FIGURE

Test Items	Mode	Condition	Unit	Nominal	Limit	Remarks
1. TUNER						
1-1 Channel	E-E	VHF Low	CH	2-4 + CATV		
		VHF High	CH	5-12+ CATV		
		UHF	CH	21-69		
1-2 Intermediate freq.	E-E	Picture	MHz	38.9		
		Sound		33.4		
1-3 Video output	E-E	(10ch)	Vp-p	1.0		
1-4 Video S/N	E-E	(10ch)	dB	44	38	
1-5 Audio output	E-E	(10ch)	dBs	-6		
1-6 Audio S/N (W/LPF)	E-E	(10ch)	dB	45	38	
2. Audio All item are measured across 8 ohm speaker output terminal.						
2-1 Audio Max. output	E-E		w	1.0	0.7	
2-2 Audio S/N (W/LPF)	E-E	500mW	dBs	43	38	
2-3 Audio distortion (W/LPF)	E-E	500mW	%	3	5	
2-4 Aduio freq.	E-E	50mW 100Hz	dB	-3	-7	
response (W/LPF)		8kHz	dB	+2	-5	
3. VCR *Test input terminal ····· Video input (1 Vp-p) ····· Audio input (-10dBs)						
3-1 Horizontal resolution	SP	PB	Line	220		F6M
3-2 Video S/N ratio	SP	PB	dB	43	38	F6D
3-3 Aduio output level	SP	PB	W	0.8		F6A
3-4 Aduio S/N ratio	SP	PB	Db	41	38	F6A
3-5 Wow & Flutter WRMS/CCIR	SP	PB	%	0.3	0.5	F6L
3-6 Jitter	SP	PB	us	0.07	0.25	F6N
3-7 Video S/N ratio	SP	R/P	dB	43	38	
3-8 Audio output level	SP	R/P	W	0.8		
3-9 Audio freq. resp.						
100Hz	SP	R/P	dB	-3.6	+/-8	
6kHz	SP	R/P	dB	0	+/-8	
(-20dBsin)						

SAFETY CHECK AFTER SERVICING

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

2. Dielectric strength test
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

3. Clearance distance
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

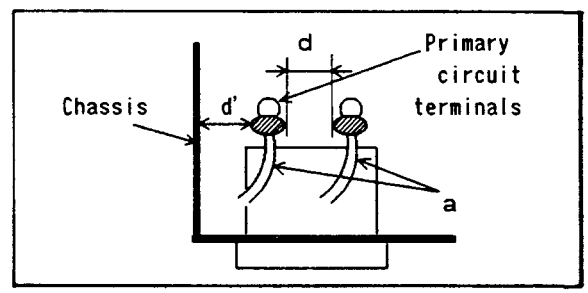


Table 1 : Ratings for selected areas

AC Line Voltage	Region	Insulation Resistance	Dielectric Strength	Clearance Distance (d) (d')
110 to 130 V	USA & Canada	---	900 V 1minute	≧3.2 mm
* 110 to 130 V	Europe	≧10 MΩ	3 kV 1minute	≧4 mm (d)
200 to 240 V	Australia	/500 V DC		≧6 mm (d')

* Class II model only.

Note: This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

4. Leakage current test

Confirm specified or lower leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)
Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts.
Use an AC voltmeter to measure across both terminals of load Z.
See figure and following table.

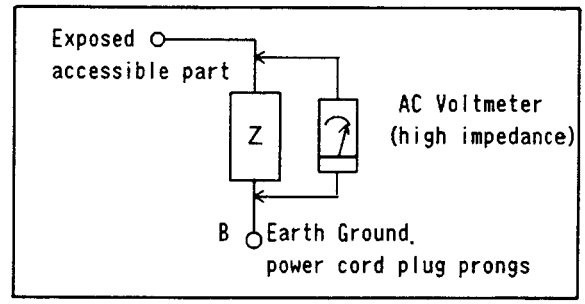


Table 2 : Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	1≦0.5 mA rms	Exposed accessible parts
110 to 130 V 200 to 240 V	Europe Australia	2 kΩ	1≦0.7 mA peak 1≦2 mA dc	Antenna terminals
		50 kΩ	1≦0.7 mA peak 1≦2 mA dc	Other terminals

Note: This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected to conform the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

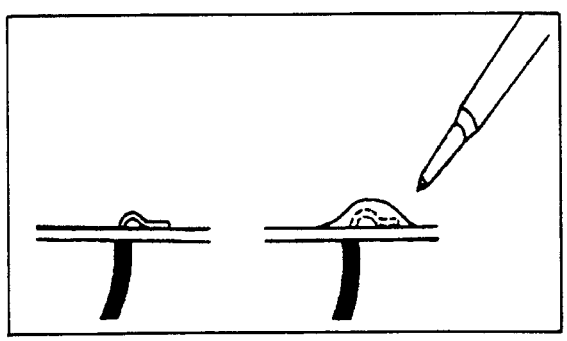
● Precautions during Servicing

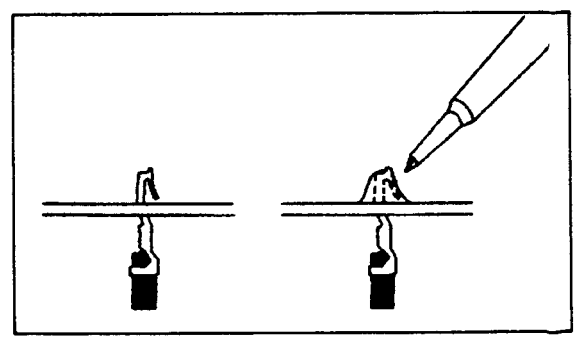
1. Locations requiring special caution are denoted by labels and inscribed on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

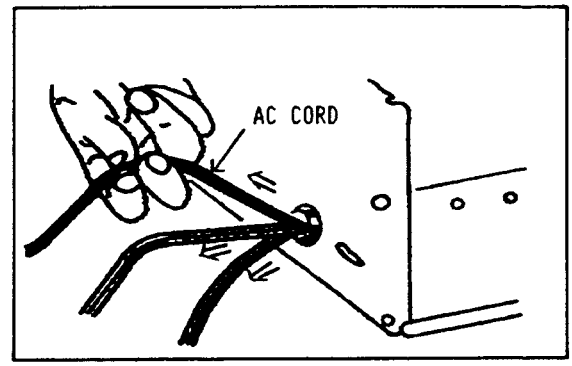
2. Parts identified by the ⚠ symbol parts are critical for safety.
   Replace only with specified part numbers.

3. Use specified internal wiring. Note especially :
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially :
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors







5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely around the terminals before soldering.

6. Observe that wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.)

7. Check that replaced wires do not contact sharp edged or pointed parts.

8. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

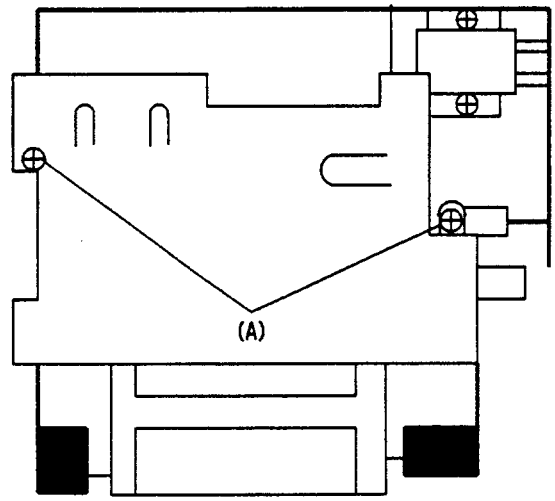
9. Also check areas surrounding repaired locations.

1. DISASSEMBLY INSTRUCTIONS (SET)

Note : TV cabinet removal

1-1. Panel top removal

- Remove 2 screws (A). (Fig. 1-1)



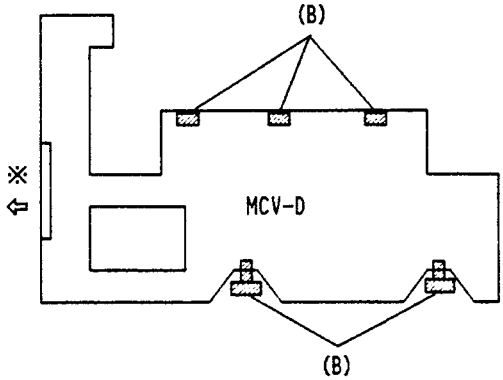
(Fig. 1-1 Top View)

1-2. MCV-D P. C. Board Removal

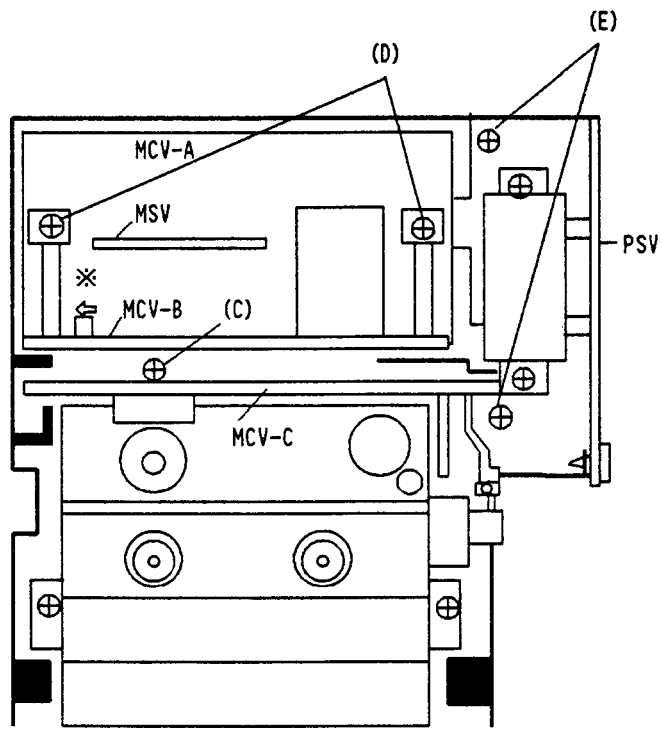
- Unfasten 5 hooks (B). (Fig. 1-2)

1-3. MCV-A, B, C, MSV P. C. Board Removal

- Remove screw (C). (Fig. 1-3)
- Remove 2 screws (D). (Fig. 1-3)



(Fig. 1-2 Front)



(Fig. 1-3 Top View)

1-4. PSV P. C. Board

- Remove 2 screws (E). (Fig. 1-3)

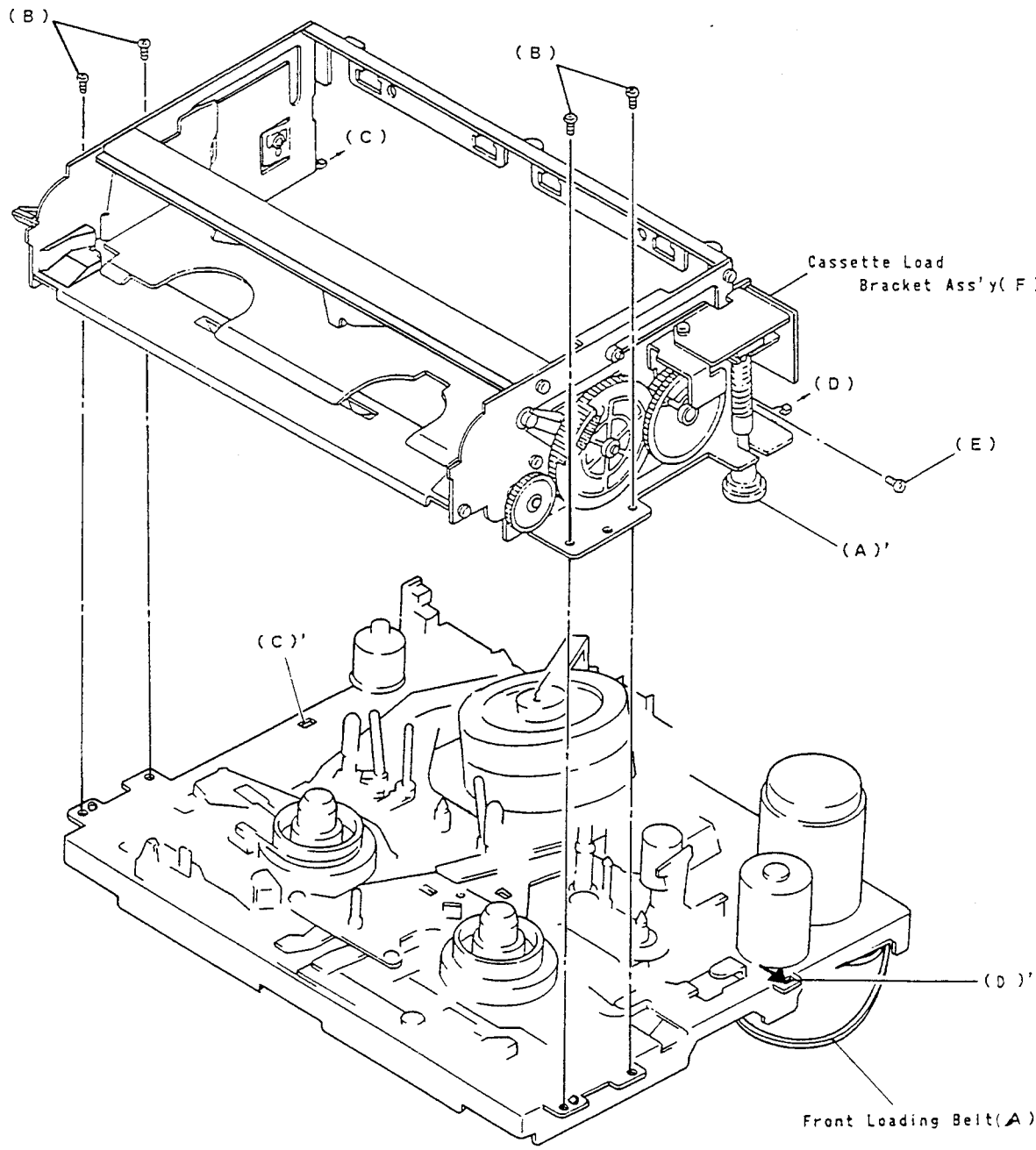
2. DISASSEMBLY INSTRUCTIONS (DECK)

(1) Front Loading Unit

1. Remove Front Loading Belt (A).
   (Hook the Front Loading Belt (A) to (A').)
2. Remove 4 screws (B).
3. Take off Left side hook (C) and Right side hook (D).
   (To unfasten the hook, lift up front edge of the Front Loading Unit and take it to forward.)

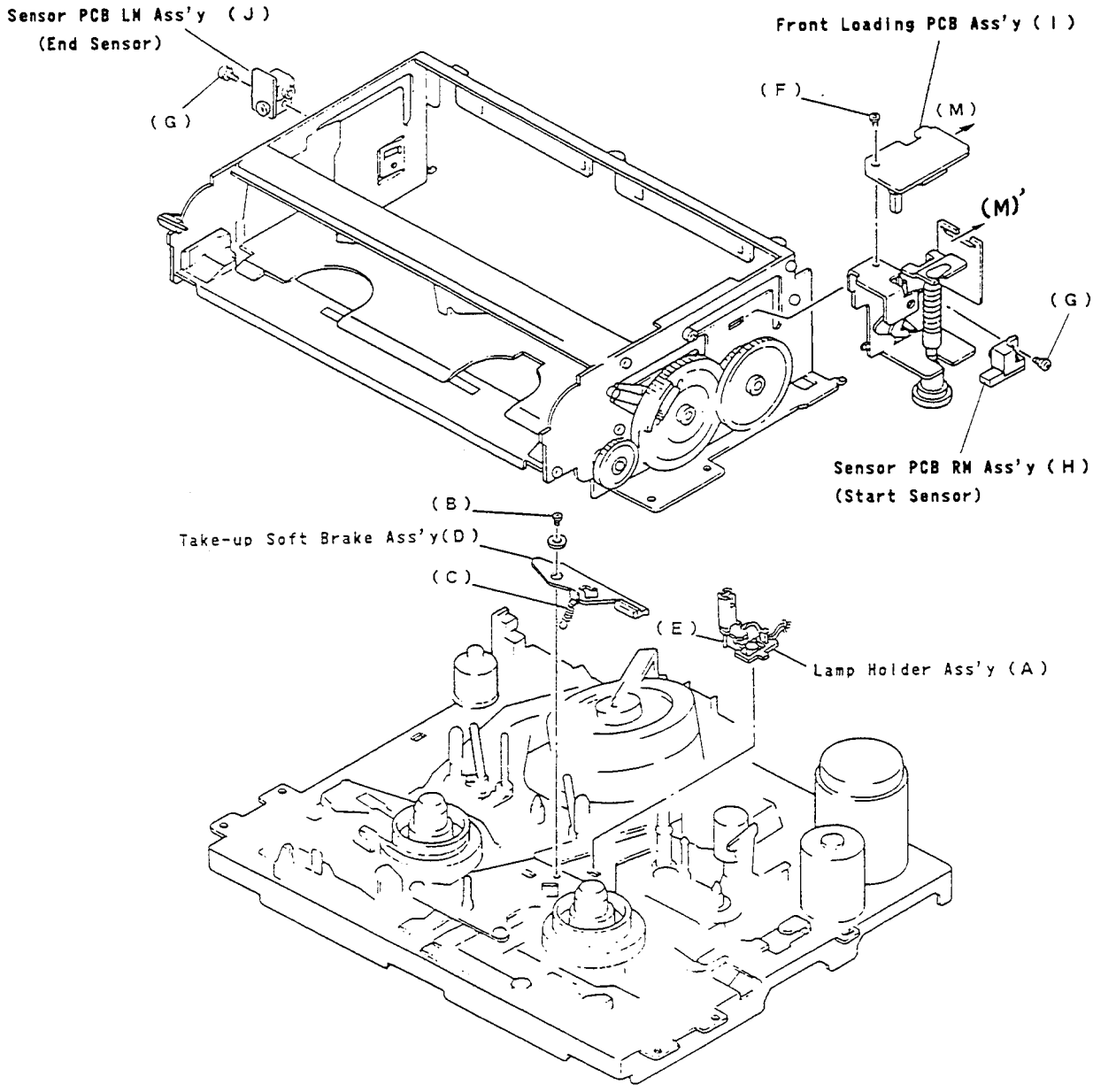
(2) Cassette Load Bracket Ass'y

1. Remove screw (E).
2. Take off the Cassette Load Bracket Ass'y (F).



(3) Photo Sensor

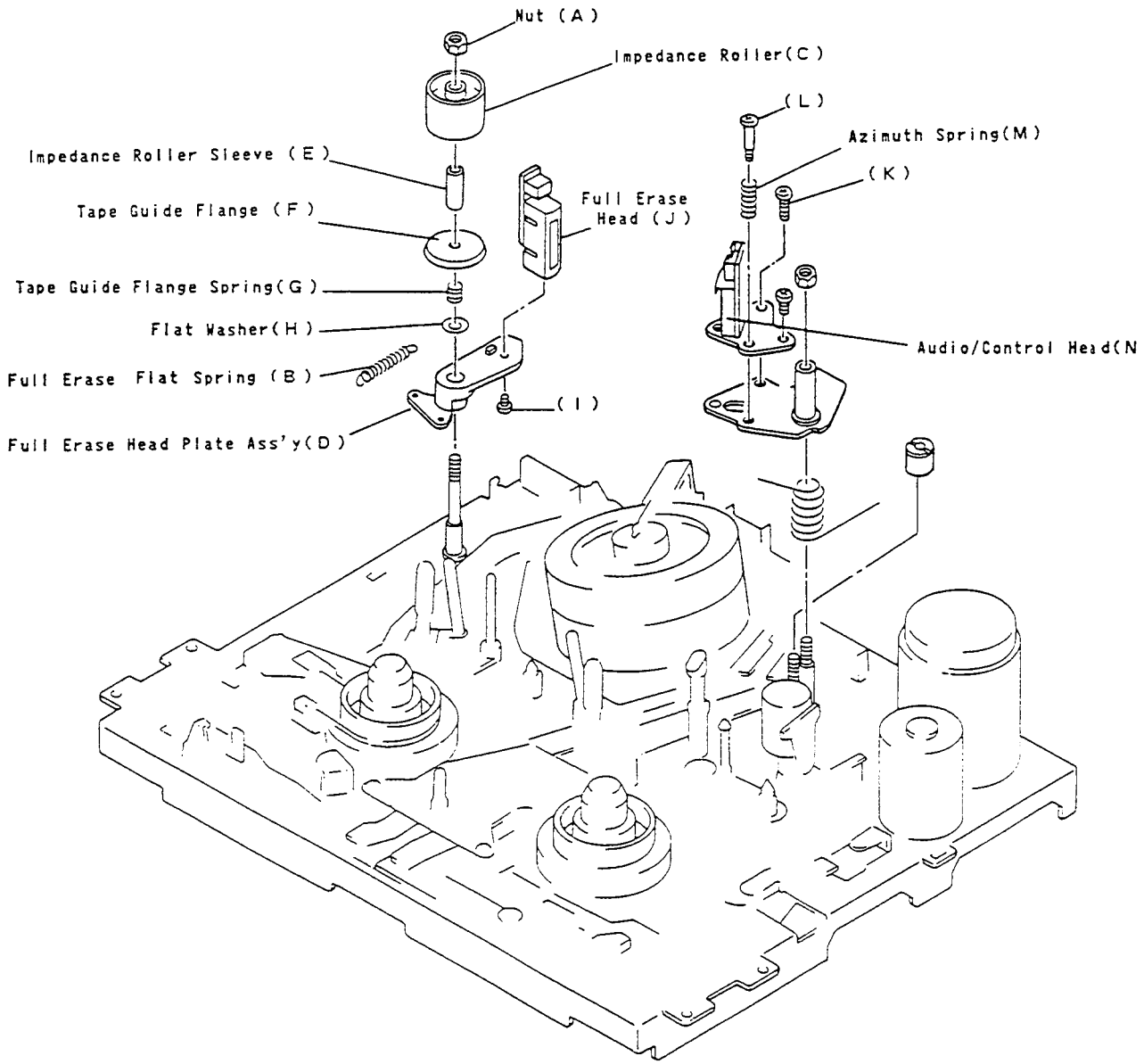
1. Replacement of Lamp Holder Ass'y (A).
   (1) Remove screw (B), move away the Take-up Soft Brake Ass'y (D).
   (At this time, do not take off the spring (C).)
   (2) Hold Lamp Holder Ass'y (A) and pull up to remove the hook (E) from the chassis.
   (3) Turn the Lamp Holder Ass'y (A) counterclockwise and take out the Lamp Holder Ass'y (A).
2. Start Sensor replacement of sensor PCB PM Ass'y (H).
   (1) Remove screw (F) and take off the Front Loading PCB Ass'y (I).
   (2) Remove screw (G) and take off the Sensor PCB RM Ass'y (H).
3. End Sensor replacement of sensor PCB LM Ass'y (J).
   (1) Remove screw (G) and take off the Sensor PCB LM Ass'y (J).



(4) Full Erase Head / Audio Control Head

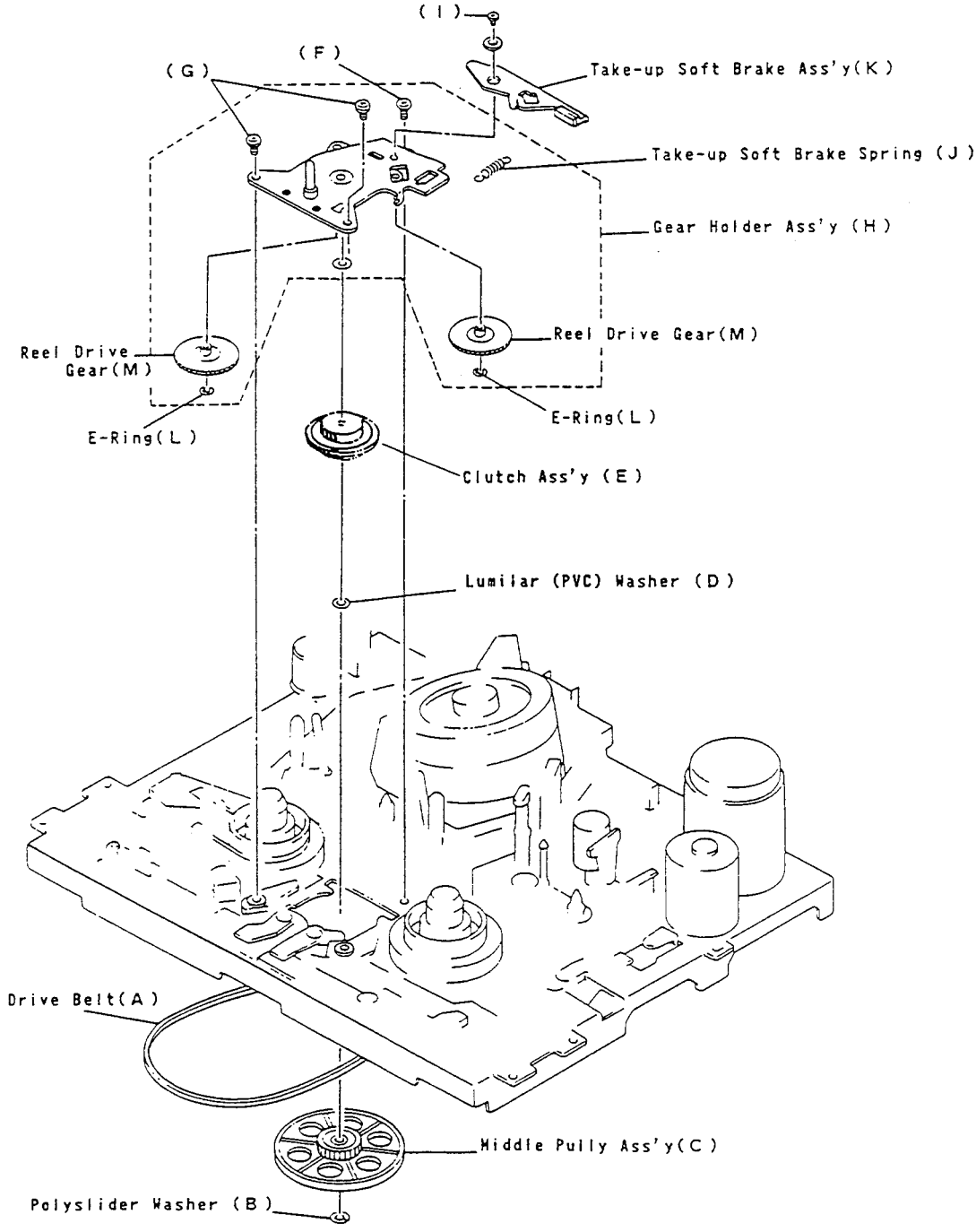
1. Erase Head (except Play Only Model)
   (1) Remove Nut (A).
   (2) Remove Spring (B).
   (3) Take out the Impedance Roller (C), and pull up the Full Erase Head Plate Ass'y (D).
   (Carefully not to lose parts (E) (F) (G) (H) at the time of the Full Erase plate removal.)
   (4) Remove screw (I) and take off the Full Erase Head (J).
2. Audio / Control Head
   (1) Remove screw (K), (L) and Azimuth Spring (M).
   (2) Remove Audio/Control Head (N).

Note : When reinstalling the Full Erase Head/Audio Control Head Unit, mechanical adjustment should be performed for proper operation.



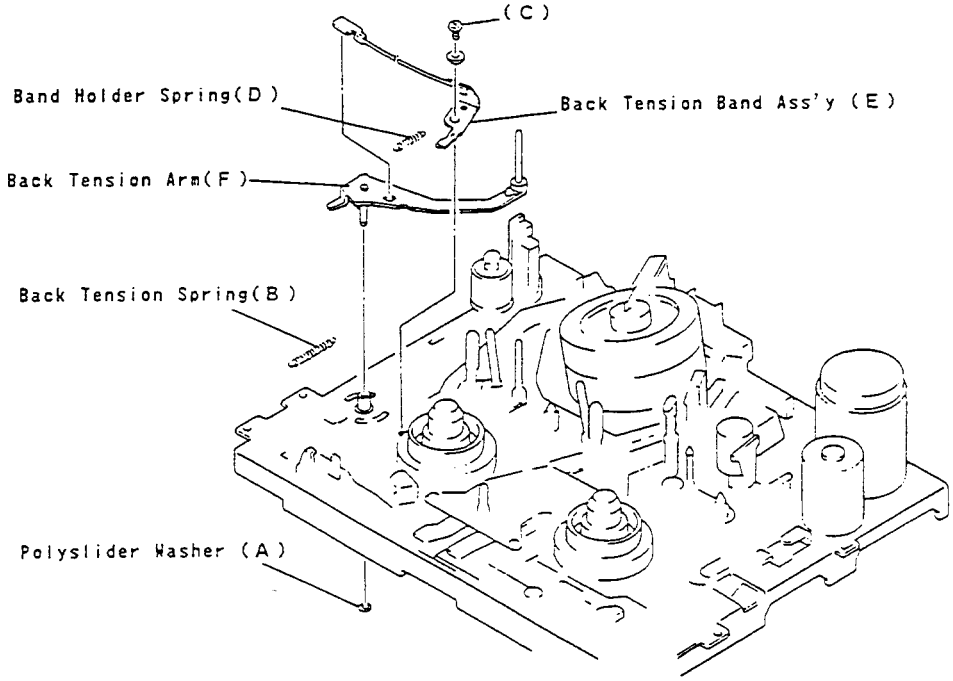
(5) Gear Holder Ass'y

1. Remove the Front Loading Unit (2. (1) on page 2-1).
2. Remove Drive Belt (A).
3. Remove Polyslider Washer (B) and middle Pulley Ass'y (C).
4. Remove Lumilar (PVC) Washer (D) and take off the Clutch Ass'y (E).
5. Remove screw (F) and 2 screws (G) and take off the Gear Holder Ass'y (H).
6. Remove screw (I) and take off the Take-up Soft Brake Spring (J).
7. Take off the Take-up Soft Brake Ass'y(K).
8. Remove 2 E-Rings (L) and take off the 2 Reel Drive Gears (M).



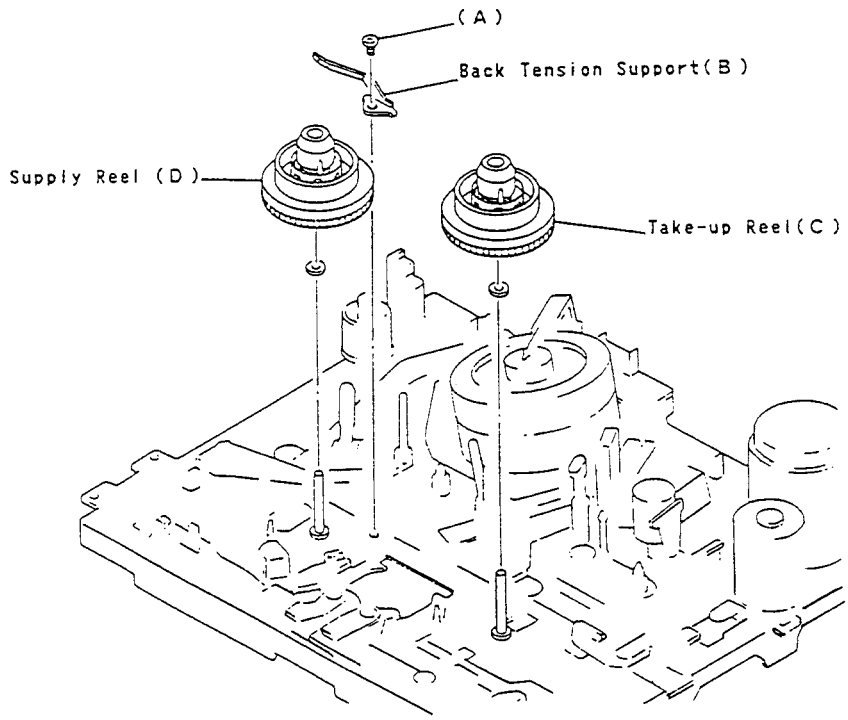
(6) Tension Arm Ass'y

1. Remove the Front Loading Unit (2. (1) on page 2-1).
2. Remove Polyslider Washer (A) and Back Tension Spring (B) from the Back Tension Arm (F).
3. Remove screw (C) and Band Holder Spring (D).
4. Take off the Back Tension Band Ass'y (E) from the Back Tension Arm (F).



(7) Reel (Take-up and Supply)

1. Remove the Front Loading Unit, Gear Holder Ass'y and Back Tension Band Ass'y.
2. Remove screw (A) and the Back Tension Support (B).
3. Remove the Take-up Reel (C) and the Supply Reel (D).

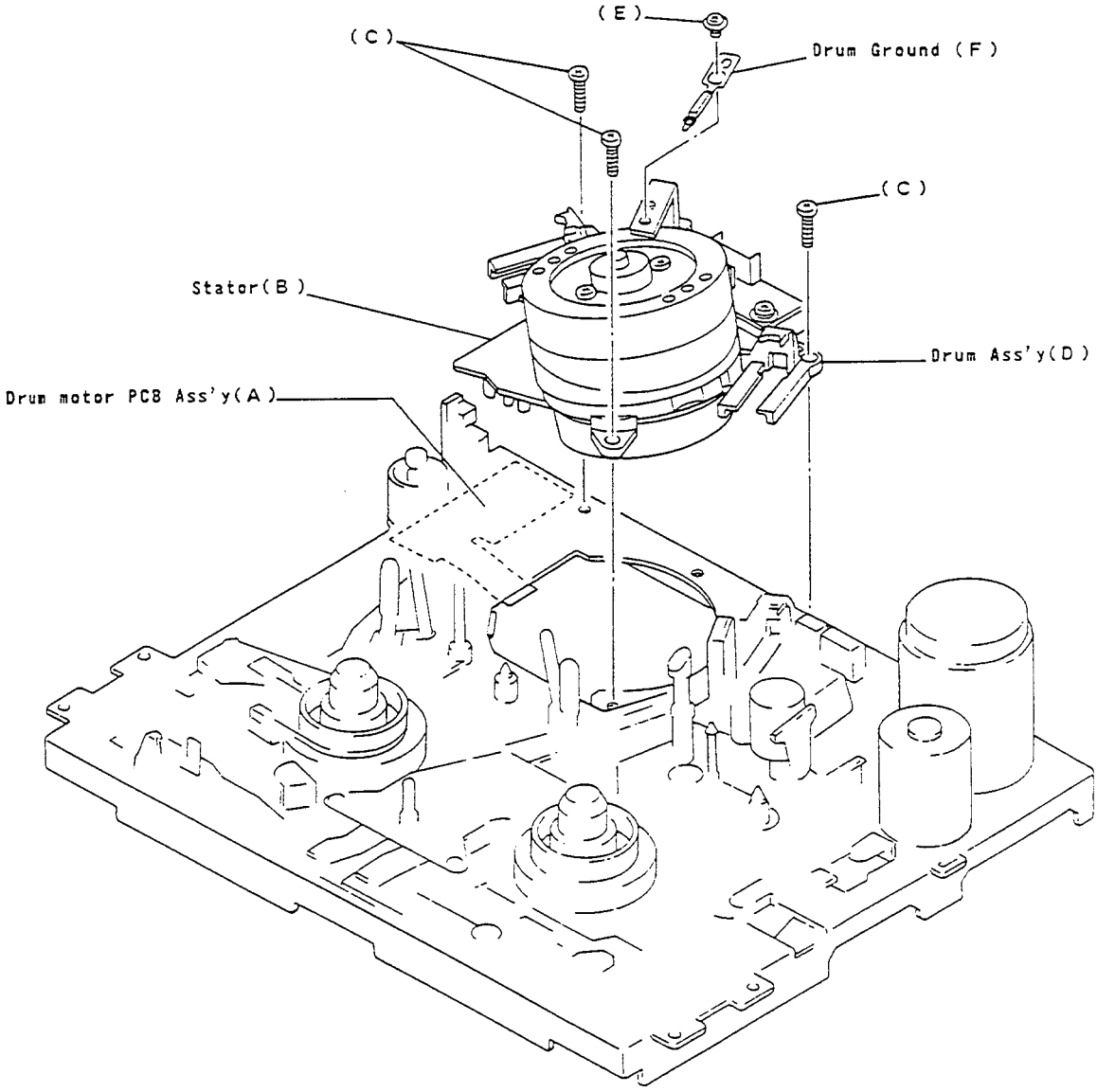


(8) Drum Ass'y

1. Remove the Front Loading Unit (2. (1) on page 2-1).
2. Disconnect the Drum Motor PCB Ass'y (A) from the stator (B).
3. Remove screw (E) and take off the Drum Ground (F).
4. Remove 3 screws (C) and take off the Drum Ass'y (D).

≡Remark≡

Take off the Drum Ass'y (D) carefully do not scratch or damage.

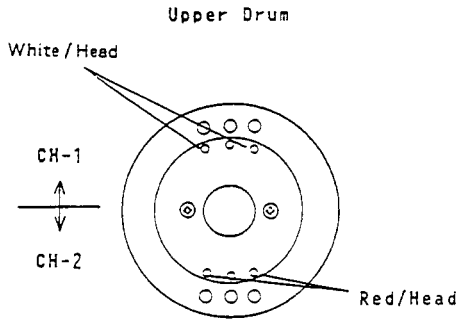


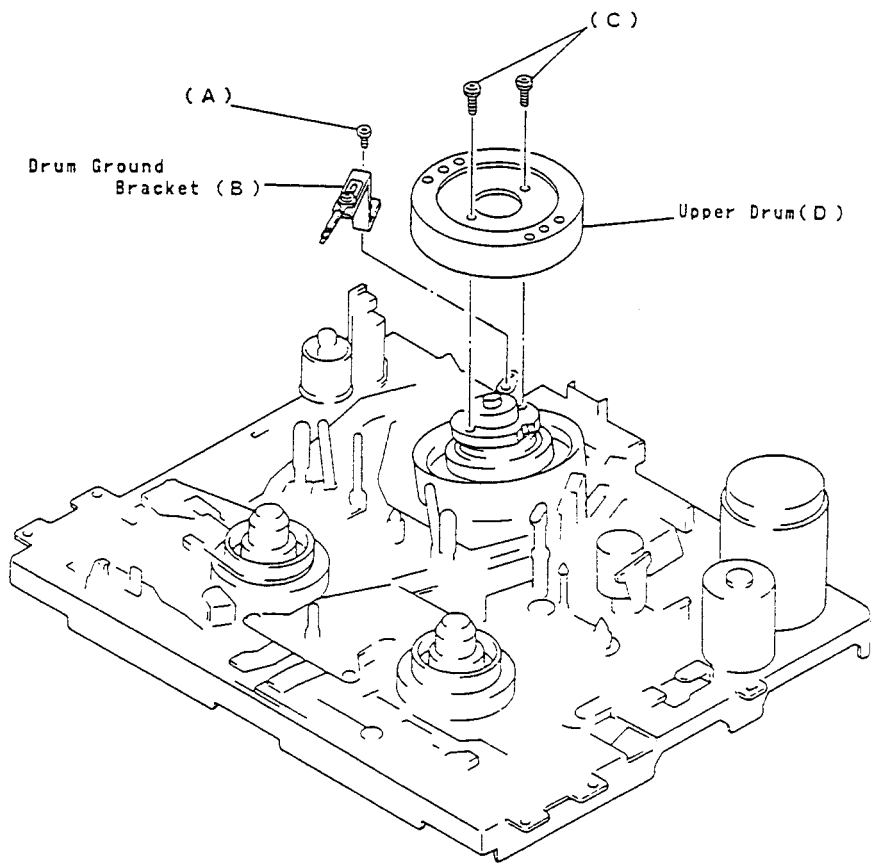
(9) Upper Drum / Reinstallation Upper, Lower Drums and Rotor

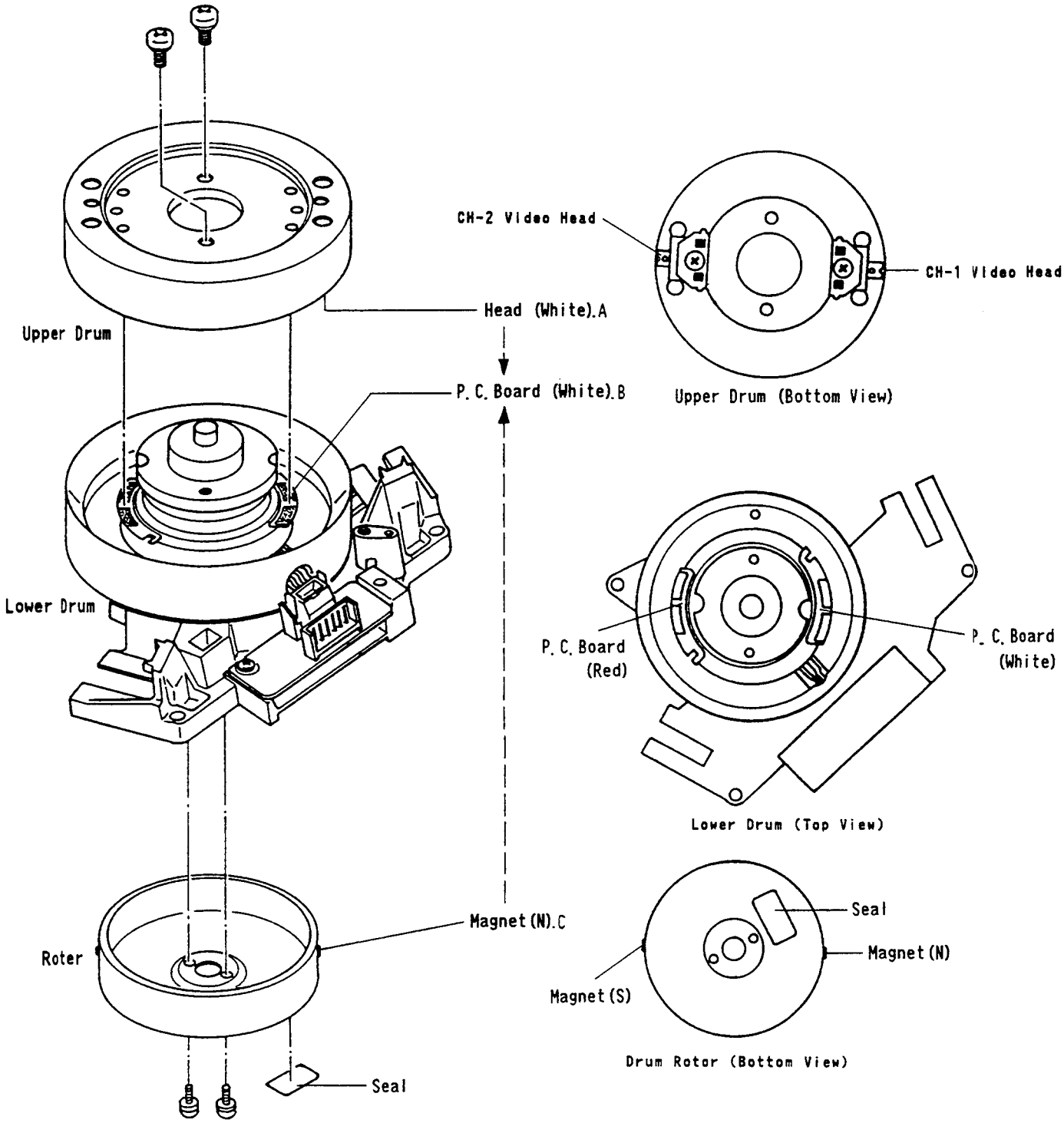
1. Remove the Front Loading Unit (2. (1) on page 2-1).
2. Remove screw (A) and take off the Drum Ground Bracket (B).
3. Remove 2 screws (C) and take off the Upper Drum (D).

≡Remark≡

1. Use gloves and do not touch the drum surface with bare fingers.
2. If the Video Head is defective, replace the upper drum with the Head.







≡Remark≡

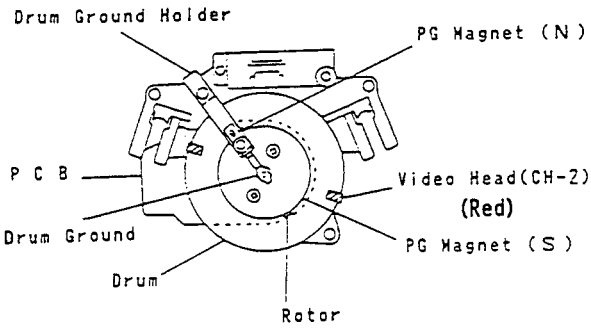
Upper Drum point-A, Lower Drum point-B and Rotor point-C these Points A, B, C, must line-up each other.
Otherwise it will creates problem.

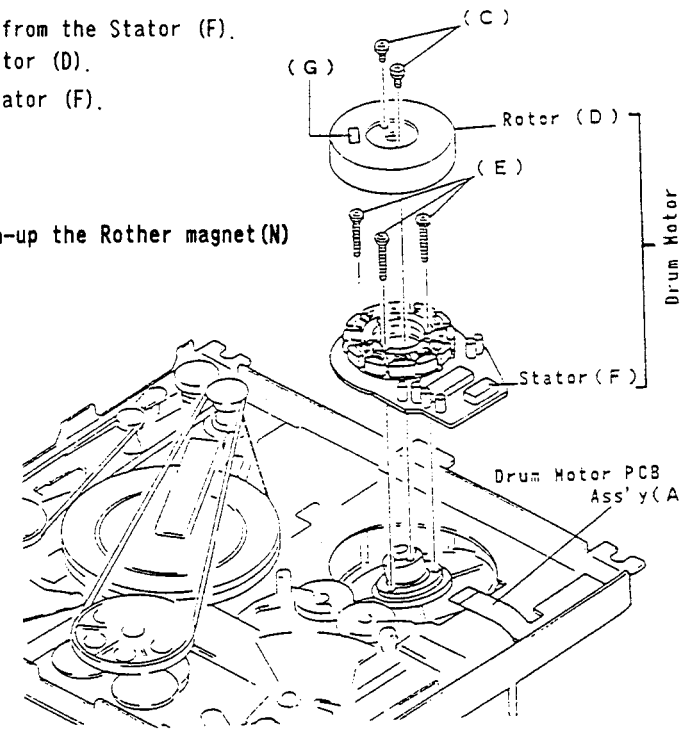
(10) Drum Motor

1. Disconnect the Drum Motor PCB Ass'y (A) from the Stator (F).
2. Remove 2 screws (C), and take off the Rotor (D).
3. Remove 3 screws (E), and take off the Stator (F).

≡Remark≡

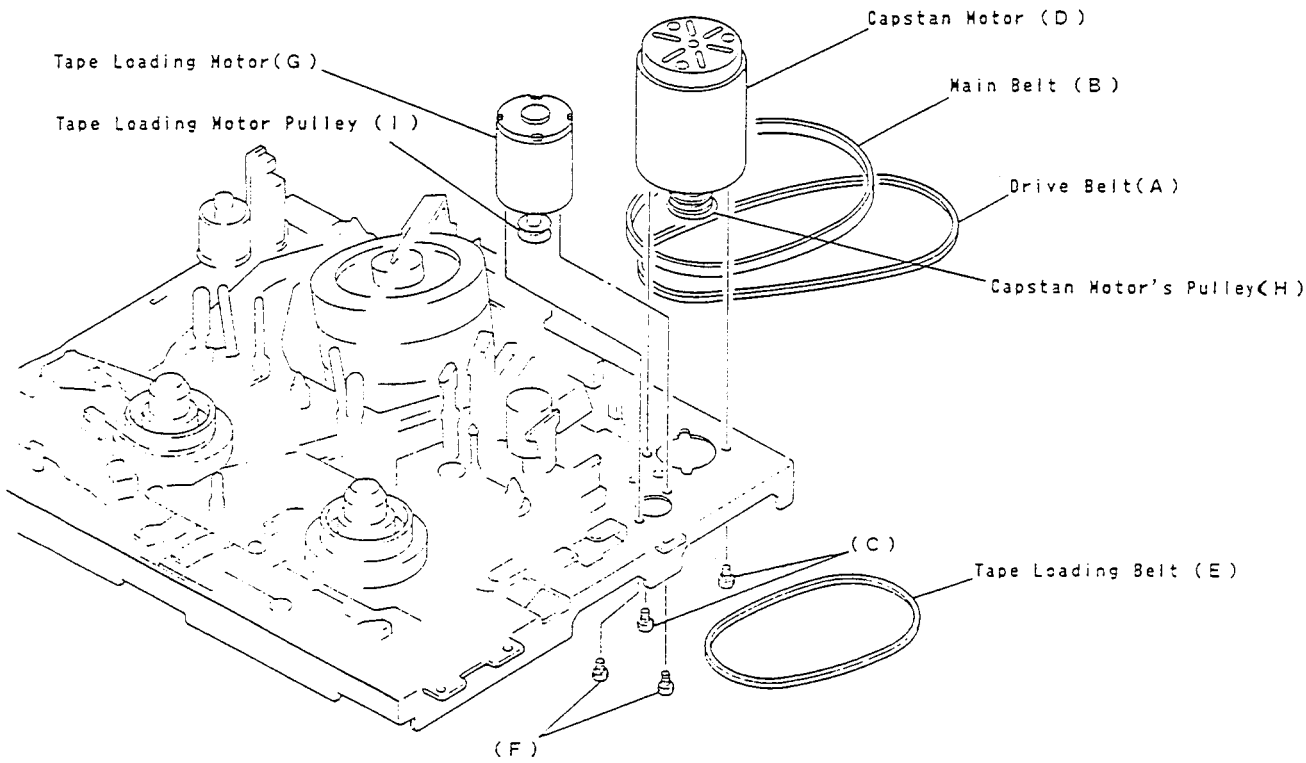
When you reinstoll the Roter. You must align-up the Rother magnet(N) white CH-1 video head. (See Page 2-8.)





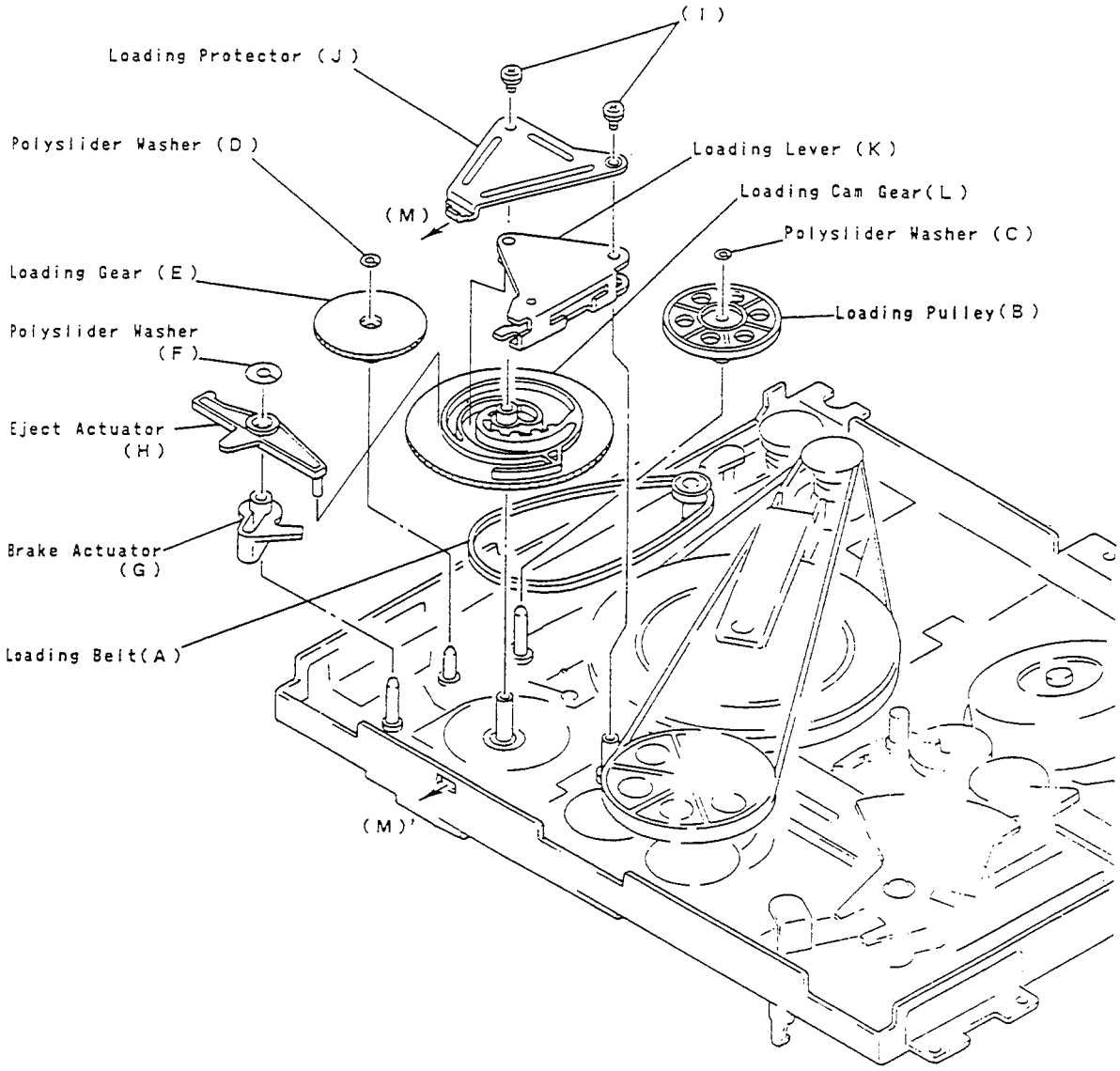
(11) Capstan Motor / Tape Loading Motor

1. Capstan Motor
   (1) Take off the Drive Belt (A) and Main Belt (B) from the Capstan Motor's Pulley (H).
   (2) Remove 2 screws (C), and take off the Capstan Motor (D).
2. Tape Loading Motor
   (1) Take off the Tape Loading Belt (E) from the Tape Loading Motor's Pulley (I).
   (2) Remove 2 screws (F), and take off the Tape Loading Motor (G).



(12) Loading Cam Gear

1. Take off the Loading Belt (A) from the Loading Pulley (B).
2. Remove Polyslider Washer (C), and take off the Loading Pulley (B).
3. Remove Polyslider Washer (D), and take off the Loading Gear (E).
4. Remove Polyslider Washer (F), and take off the Eject Actuator (H) and the Brake Actuator (G).
5. Remove 2 screws (I), and take off the Loading Protector (J) and the Loading Lever (K).
6. Take off the Loading Cam Gear (L).

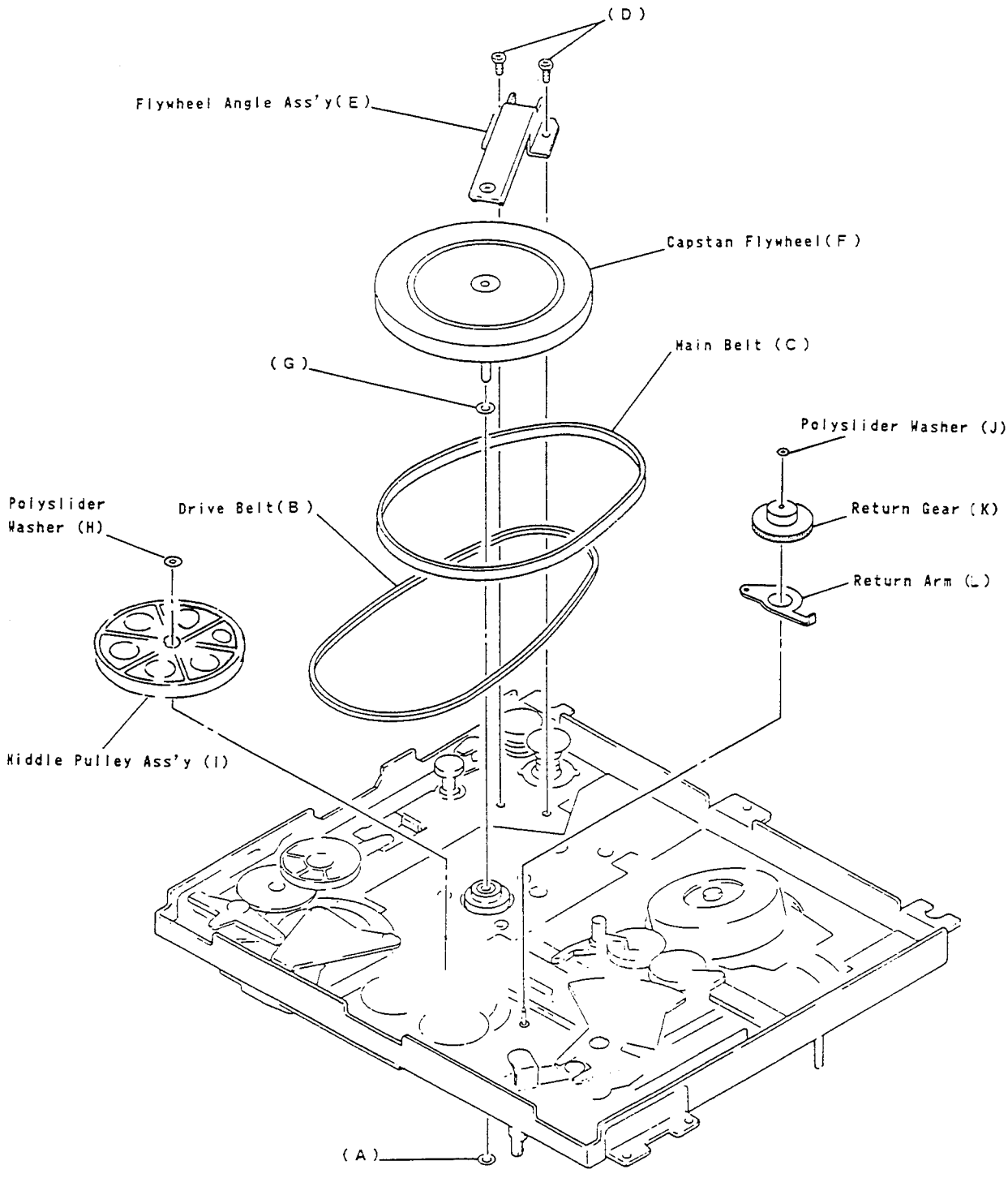


(13) Capstan Flywheel / Return Arm

1. Remove the Washer (A).
2. Take off the Drive Belt (B) and Main Belt (C).
3. Remove 2 screws (D), and Take off the Flywheel Angle Ass'y (E).
4. Take off the Capstan Flywheel (F).
5. Remove Polyslider Washer (H).
6. Take off the Middle Pulley Ass'y (I).
7. Remove Polyslider Washer (J).
8. Take off the Return Gear (K) and Return Arm (L).

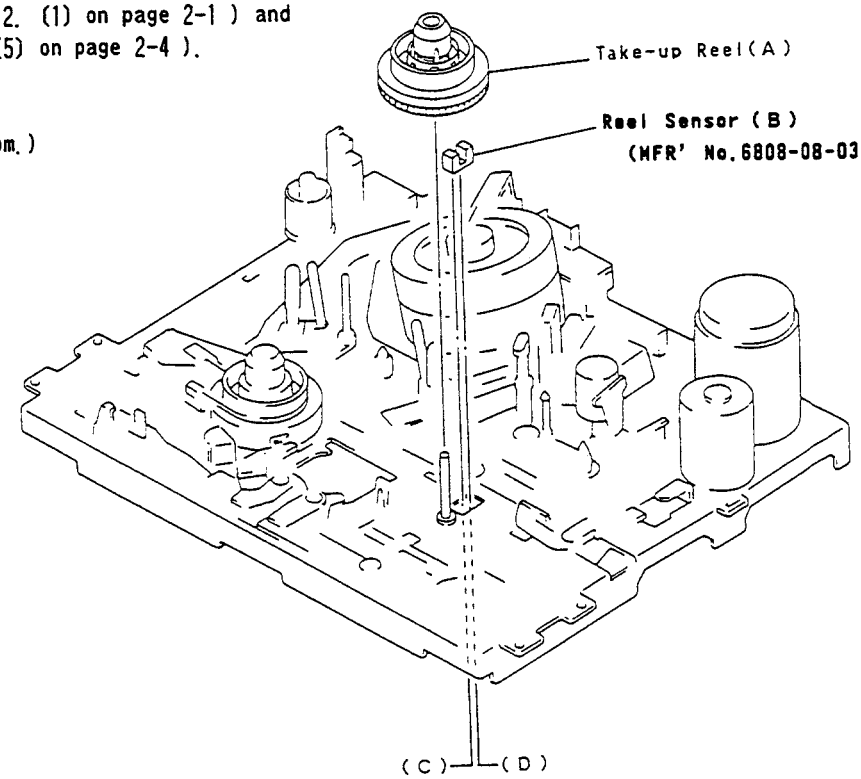
≡Remark≡

Do not miss the Washer (A) and (G) when pulling out the Capstan Flywheel.



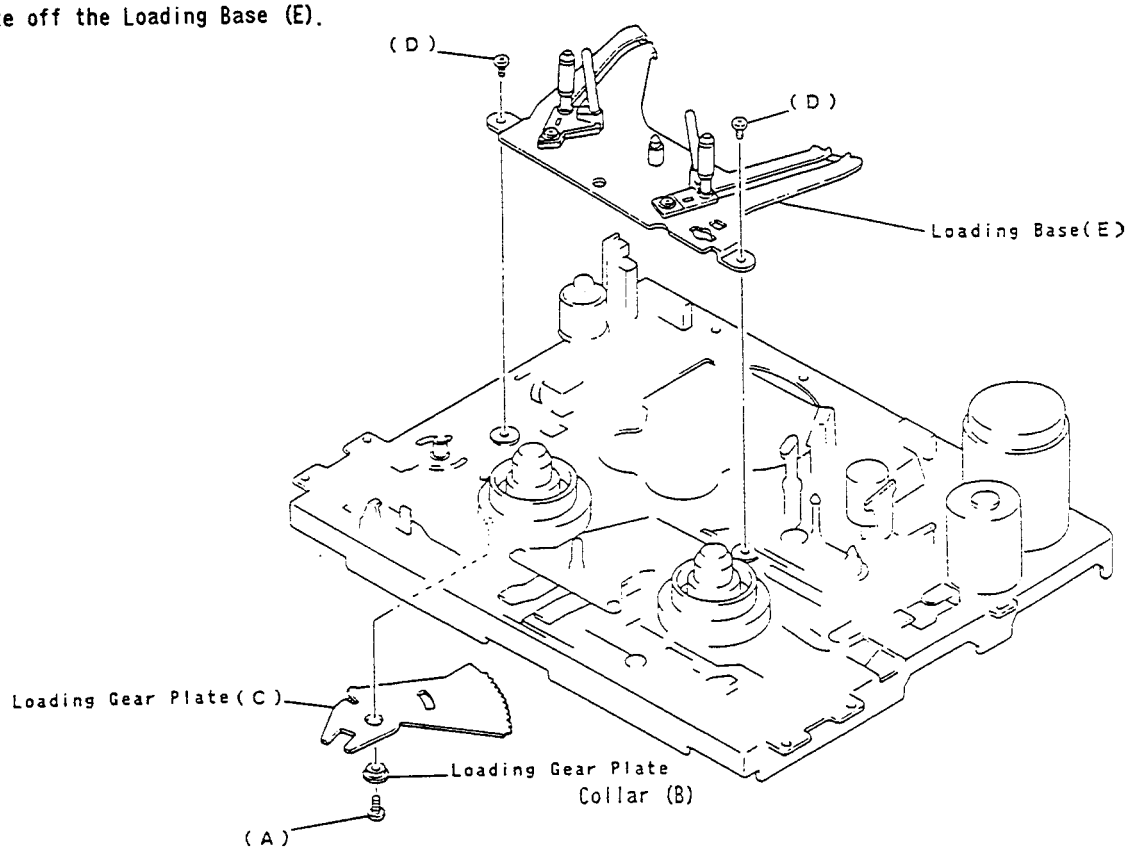
(14) Reel Sensor

1. Remove Front Loading Unit (2. (1) on page 2-1) and the Gear Holder Ass'y (2. (5) on page 2-4).
2. Remove Take-up Reel (A).
3. Remove Reel Sensor (B).
   (Unsolder (C), (D) from bottom.)



(15) Loading Base

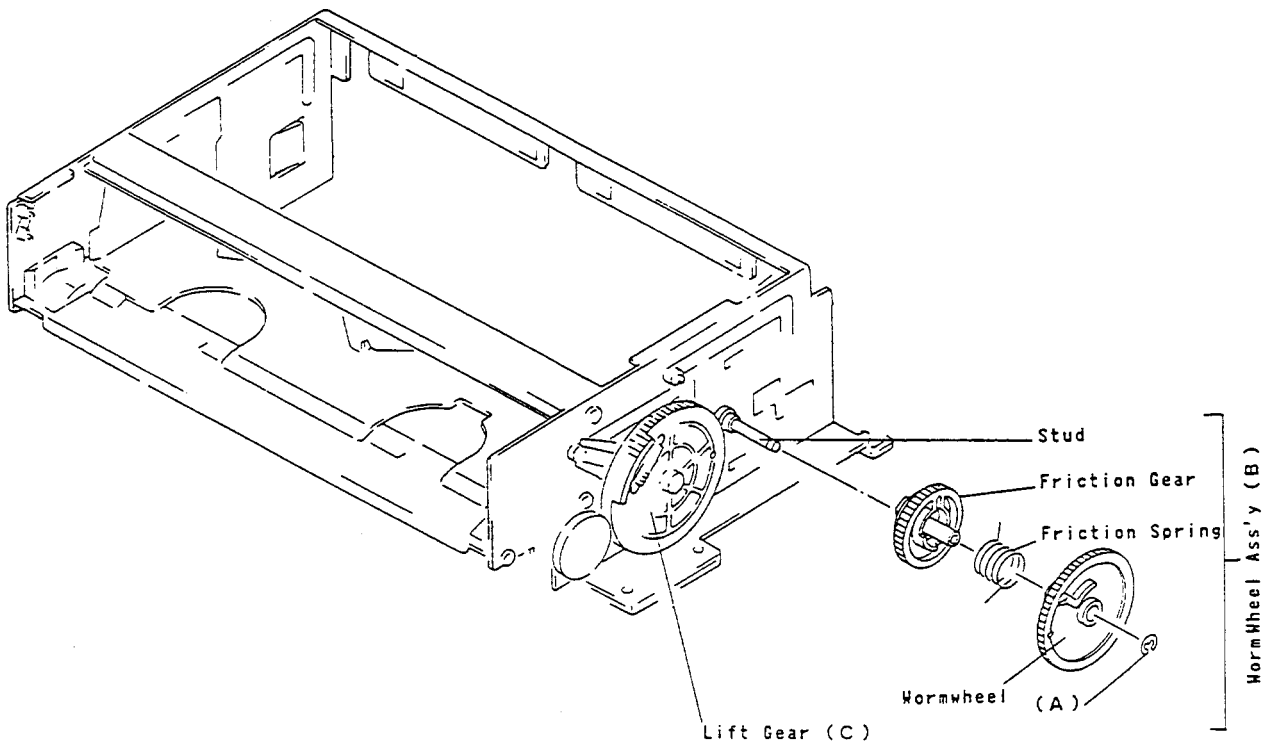
1. Remove Drum Ass'y, Tension Arm Ass'y and Photo Sensor. (Sensor Lamp)
2. Remove screw (A) and Loading Gear Plate Collar (B), Loading Gear Plate (C).
3. Remove 2 screws (D).
4. Take off the Loading Base (E).

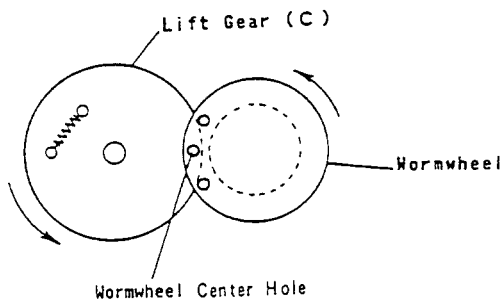


(16) Front Loading Wormwheel Unit

1. Disassembly
   (1) Remove Front Loading Belt and Bracket Ass'y. (See the Page 2-1 (2))
   (2) Remove E-Ring (A).
   (3) Remove Wormwheel Ass'y (B). (Wormwheel, Friction Spring, Friction Gear)
2. Assembly
   (1) Turn the Lift Gear (C) fully counterclockwise.
   (2) Restore Wormwheel Ass'y (B) to the stud.

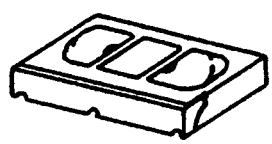
≡Remark≡
Align the Lift Gear (C) Hole with Wormwheel Center Hole as illustrated.



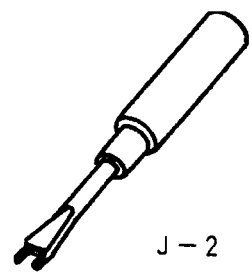


3. SERVICE JIG AND TOOLS

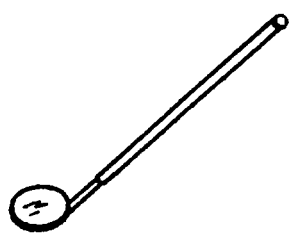
Fig. No.	Jig Item	Part No.	Adjustment
J – 1	Alignment Tape	F6-N	X Value / Envelope Waveform / Audio Control Erase Head Azimuth
	Alignment Tape	F6-A F6-S2	Audio Control Erase Head Height and Tilt (Normal Audio Model) Audio Control Erase Head Height Adjustment (Linear Stereo Model)
	Alignment Tape	F6-HI	Audio Output Adjustment (Hi-Fi Stereo Model)
	Alignment Tape	F6-VF	Half Loading Arm Height Adjustment (Index Model)
J – 2	Driver Large (Special)	VT-G-002	X Value
	Driver Small (Special)	VT-G-003	Guide Roller
J – 3	Mirror	VFX-0169	Tape Transportation Check
J – 4	Box Driver M3	Marketing goods	Guide Pole / Audio Control Erase Head Height
	Box Driver M2	Marketing goods	Half Loading Arm Height (Index Model)



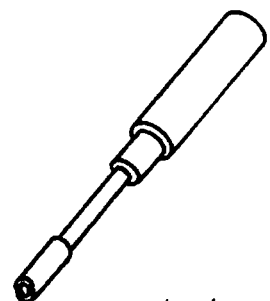
J – 1



J – 2



J – 3



J – 4

4. STANDARD MAINTENANCE

4-1 Service schedule of components

○:Check ●:Change

Deck		Periodic Service Schedule			
Ref. No.	Parts Name	1000 h	2000 h	3000 h	4000 h
2	Upper Drum	○	●	○	●
134	Pinch Roller(A)		●		●
171	Capstan Motor Assembly		●		●
229	Clutch Assembly		●		●
281	LM Assembly			●	
173	Main Belt		●		●
196	Back Tension Band		●		●
233	Drive Belt		●		●
251	Brake Shoe		●		●
285	Loading Belt		●		●
373	Front Loading Belt		●		●
14	Drum Ground			●	
82	ACE Head			●	
92	Full Erase Head (except Play Only Model)			●	
121	Reel Assembly			●	

Note:

1. Clean all parts for the tape transport.
   Upper Drum with video head / Pinch Roller
   Audio Control Head / Full Erase Head

2. After cleaning up the parts, perform all DECK ADJUSTMENTS.

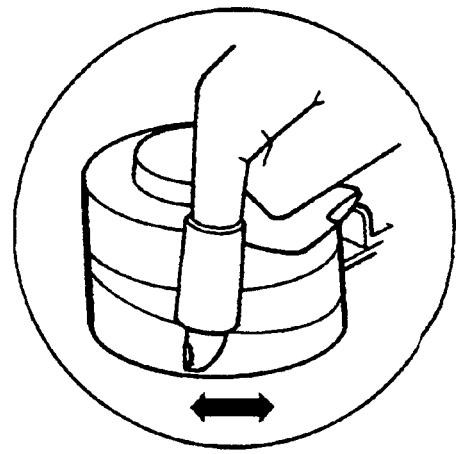
4-2 Cleaning

1. Cleaning of Video Head

Head cleaning by using a chamois skin.

— Procedure —

(1) Remove the top cabinet.
(2) Put on a glove(thin type) to avoid touching the upper drum and lower drum with bare hand.
(3) Put a few drops of alcohol on the Chamois skin, and by slightly placing it against the head tip, allow the upper drum to turn the right and left.



— Remark —

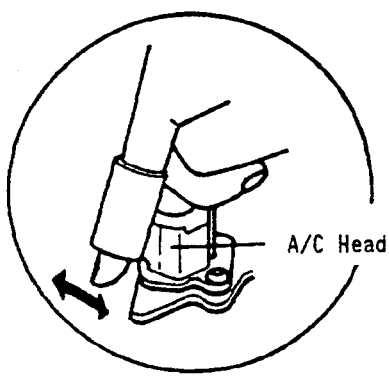
(1) The video head is very hard material, but since it is very thin, avoid cleaning it vertically.
(2) Wait for the cleaned part to dry out before operating the unit.
(3) Do not reuse the stained chamois skin.

2. Cleaning of Audio Control Head

Head cleaning by using a chamois skin.

— Procedure —

(1) Remove the Top Cabinet.
(2) Put a few drops of alcohol on the chamois skin, Clean up the audio control head, being careful not to damage the upper drum and other tape running parts.

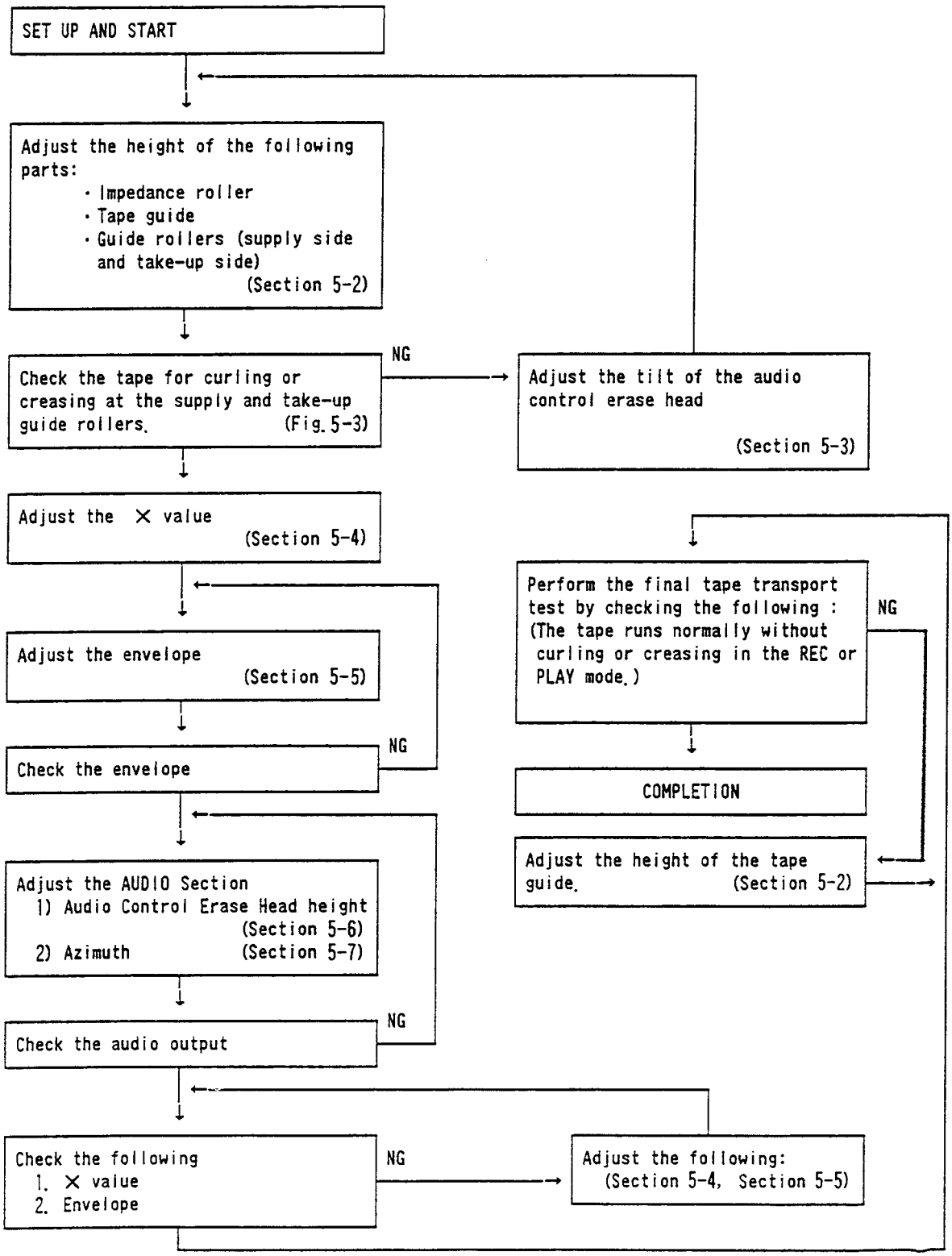


— Remark —

(1) Avoid cleaning audio control head vertically.
(2) Wait for the cleaned part to dry well, before operating the unit.

5. MECHANICAL ADJUSTMENT

5-1 Tape Transport Adjustment Flow Chart


SET UP AND START
Adjust the height of the following parts:
· Impedance roller
· Tape guide
· Guide rollers (supply side and take-up side)
(Section 5-2)
Check the tape for curling or creasing at the supply and take-up guide rollers. (Fig. 5-3)
NG
Adjust the tilt of the audio control erase head
(Section 5-3)
Adjust the × value
(Section 5-4)
Adjust the envelope
(Section 5-5)
Check the envelope
NG
Adjust the AUDIO Section
1) Audio Control Erase Head height
(Section 5-6)
2) Azimuth (Section 5-7)
Check the audio output
NG
Check the following
1. × value
2. Envelope
NG
Adjust the following:
(Section 5-4, Section 5-5)
Perform the final tape transport test by checking the following :
(The tape runs normally without curling or creasing in the REC or PLAY mode.)
NG
COMPLETION
Adjust the height of the tape guide. (Section 5-2)

5-2 Tape Running Position Adjustment
(Guide Roller / Tape Guide / Impedance Roller)

1. Perform the height adjustment for the following items to obtain the proper tape running position.
   ① Impedance Roller
   ② Guide Roller (Supply side)
   ③ Guide Roller (Take-up side)
   ④ Tape Guide

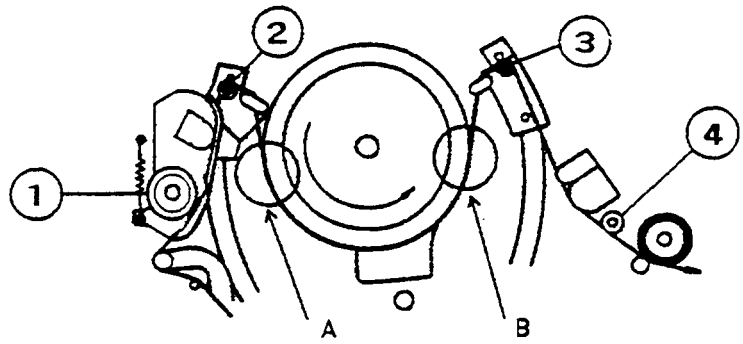


Fig. 5-1

2. Load a blank tape and set the VCR to the PLAY mode. Check the tape transport at points "A" and "B" as shown in Fig. 5-1.

3. Operate the VCR between the PLAY and STOP modes several times.

4. Observe the tape transport at the lead surface of the cylinder during the PLAY mode, and confirm that the tape runs smoothly along the lead surface of the cylinder without slipping downward or upward. (Refer to Fig. 5-2).

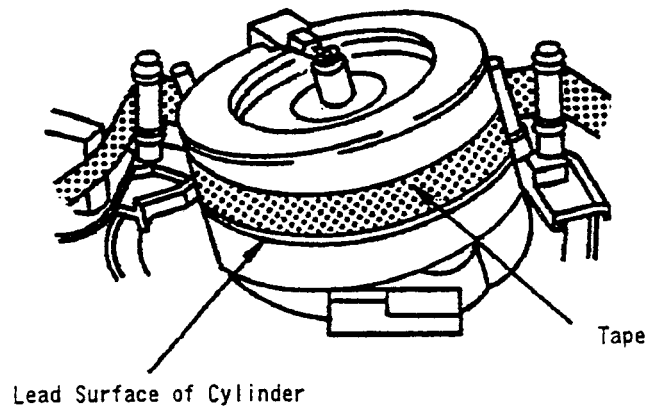


Fig. 5-2

5. During loading, play and unloading, observe the tape at the supply and take-up guide rollers, tape guide and impedance roller. Confirm that there is no curling or creasing etc., as shown in Fig. 5-3.

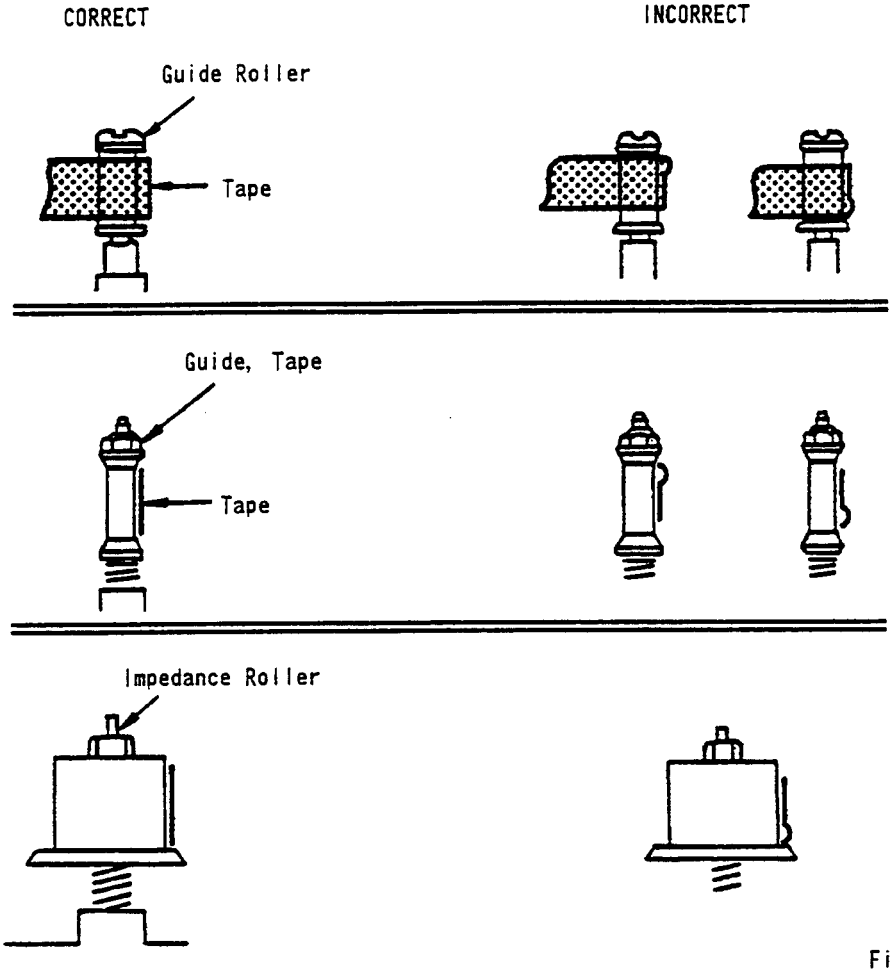


Fig. 5-3

6. If any curling or creasing is noted, adjust tape guide roller and impedance roller first. In this case, adjust the impedance roller in both PLAY and REV modes so that tape runs as shown in Fig. 5-4.

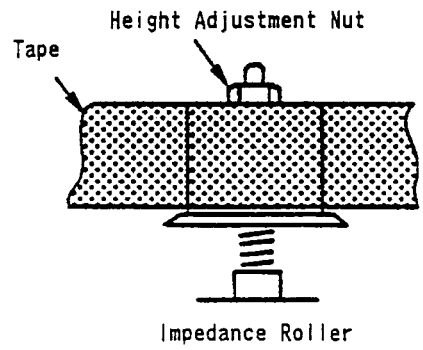


Fig. 5-4.

7. Next, adjust the guide roller height. Insert the adjustment driver into the guide roller top. (Refer to Fig. 5-5).
Adjust the height by turning the driver slightly so that the tape runs on the guide roller as shown in Fig. 5-3, and the lower edge of the tape runs along the lead surface of the cylinder.

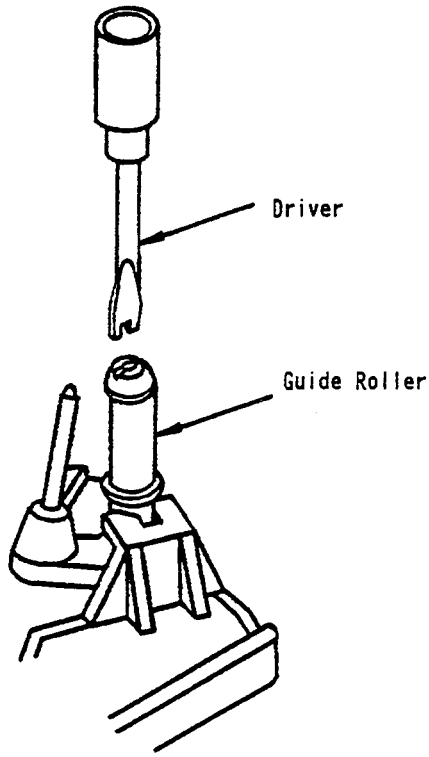
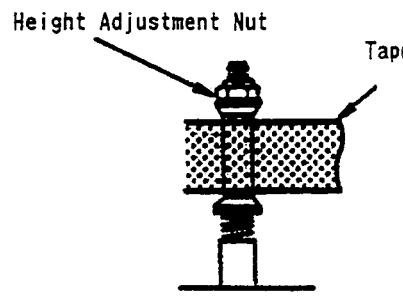


Fig. 5-5



Guide, Tape

Fig. 5-6

8. After completion of the supply side guide roller adjustments, adjust tape guide so that tape runs as shown in Fig. 5-6, and adjust the take-up side guide roller by using the same procedures as for the supply side adjustments.
In this case, adjust the guide roller height first.

9. Confirm that there is no curling or creasing at the impedance roller. (Both PLAY and REV modes.)
If there is any curling or creasing at the impedance roller, adjust the same procedures of Fig. 5-6.

10. Finally, confirm that there is no curling or creasing at the take-up side guide roller and tape guide. If there is any curling or creasing between the take-up side guide roller and the audio control erase head, adjust the audio control erase head.

5-3 Audio Control Erase Head Adjustment

1. Load a recorded tape and set the VCR to PLAY mode.

2. Adjust the height of the edge of the audio track on the audio control head by using the height adjustment nut Ⓐ and the tilt adjustment screw Ⓒ so that the tape transport is smooth at the take-up guide pole. Align the audio control head height. (Refer to Fig. 5-7).

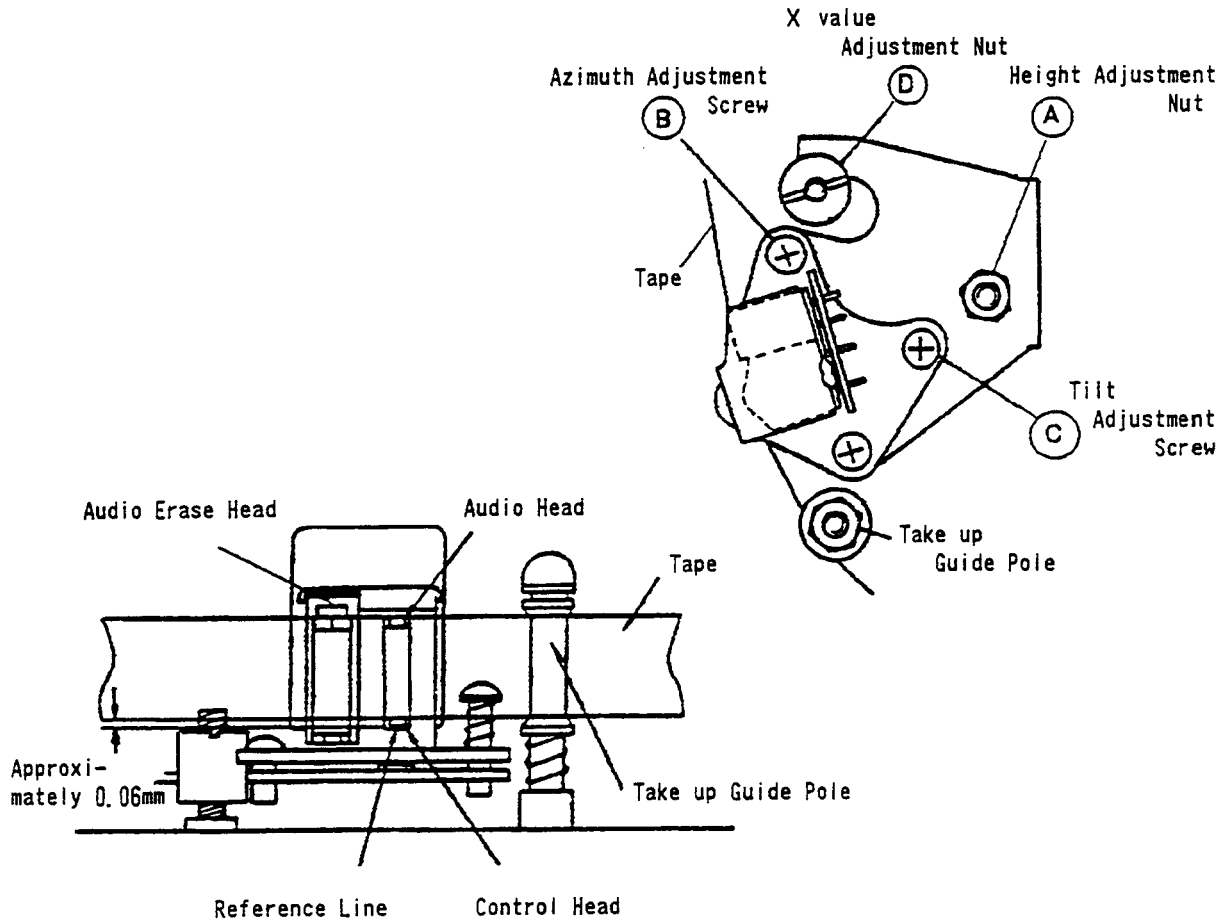


Fig. 5-7

3. The fine adjustment is not required at this time.
   The following conditions are sufficient :
   (a) Proper tape transport between the audio control head and the take-up guide pole.
   (b) Stable SERVO system operation. (proper pickup of tape's recorded control signal.)

5-4 × Value Adjustment (PB FM Peak Adjustment)

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
TP 4 (ENV) GND TP 2 (RF SW)	Oscilloscope	PLAY MODE Test tape F6-N

ADJ. Location	ADJ. Value
× value adjustment nut	Maximum level (CH1 ENVE Signal)

Test Equipment Connecting Diagrams

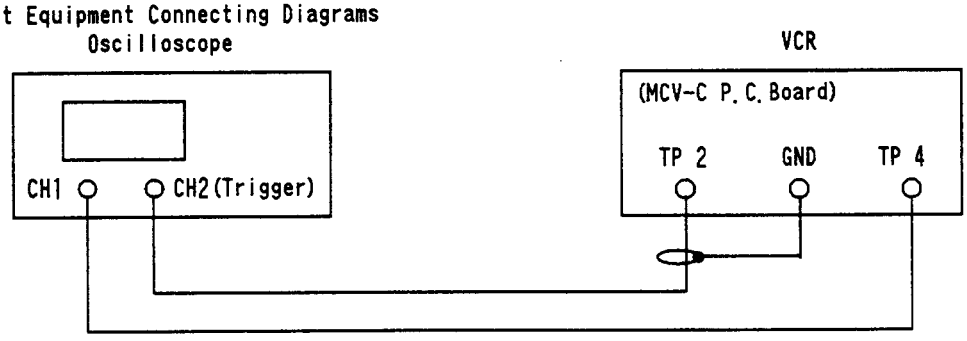


Fig. 5-8

1. Connect the equipment as shown in Fig. 5-8.
2. Adjust Tracking Volume to its center position.
3. Adjust the × value adjustment nut Ⓓ for maximum ENVE signal for CH1 by using F6-N test tape (Refer to Fig. 5-9).
4. After adjusting the × value, check that the output level of the ENVE signal for CH1 changes symmetrically by rotating Tracking Volume.

Note:
1. X value adjustment above should be done so that the noise can be kept out on the TV screen with Tracking Volume set to its center.
2. Confirm that Electrical Adjustment (Video Head Switching Point and CTL Preset) has been done before Deck Adjustment.

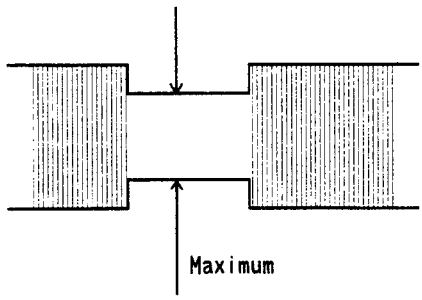


Fig. 5-9

5-5 Envelope Waveform Adjustment

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
TP 4 (ENV) GND TP 2 (RF SW)	Oscilloscope	PLAY MODE Test tape F6-N
ADJ. Location		ADJ. Value
Guide rollers		Maximum level and correct waveform (ENVE Signal)

Test Equipment Connecting Diagrams

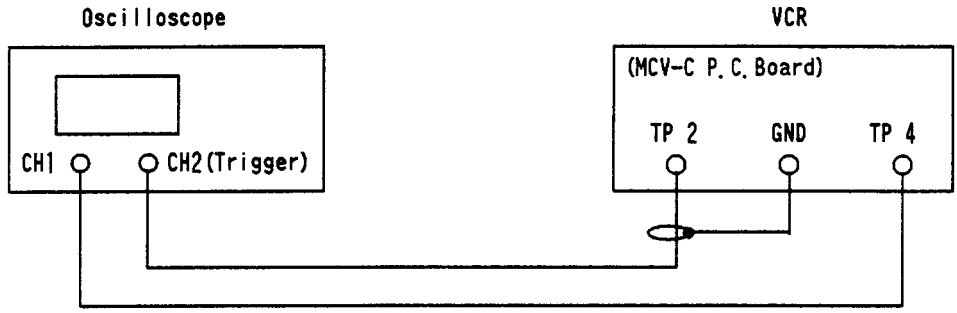


Fig. 5-10

1. Connect equipment as shown in Fig. 5-10.
2. Playback the test tape F6-N.
3. The envelope waveform can be performed by adjusting the height of both the supply side and take-up side guide rollers.
   Finely adjust the height of guide rollers so that the envelope waveform is as flat as possible.
4. Set Tracking Volume to its center position and confirm that a nearly maximum level is obtained. Then rotate the Tracking Volume in both directions while adjusting the height of guide rollers, in order to obtain the envelope waveform which is as flat as possible.
   If the tape is above or lower than helical tape position, the envelope waveforms will take the shape as shown in Fig. 5-11 and Fig. 5-12.
5. Adjust for maximum flatness of the envelope waveform according to the Fig. 5-11 and Fig. 5-12.
6. After adjustment, rotate Tracking Volume counterclockwise and clockwise, and check that the waveform changes symmetrically.
7. Check the tape curl. (Refer to Section 5-2.)

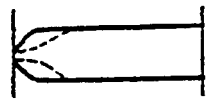
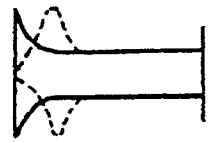
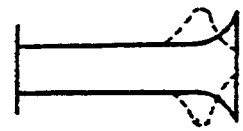
	Tape is too high	
	Supply side	Take-up side
When the tracking volume is rotated counterclockwise and clockwise directions.		
		
Adjustment	Supply side guide roller rotated clockwise direction (lowers guide roller) to flatten envelope.	Take-up side guide roller rotated clockwise direction (lowers guide roller) to flatten envelope.

Fig. 5-11

	Tape is too low	
	Supply side	Take-up side
When the tracking volume is rotated counterclockwise and clockwise directions.		
Adjustment	Supply side guide roller rotated counterclockwise direction (raises guide roller) to flatten envelope.	Take-up side guide roller rotated counterclockwise direction (raises guide roller) to flatten envelope.

Fig. 5-12

5-6 Audio Control Erase Head Height / Audio Control Erase Head Tilt Adjustment

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
Audio Output	Oscilloscope AC voltmeter	PLAY MODE Test tape F6-A

ADJ. Location	ADJ. Value
Height adjustment nut Azimuth adjustment screw	Maximum level (1KHz Audio Output Signal)
Tilt adjustment screw	

Test Equipment Connecting Diagrams

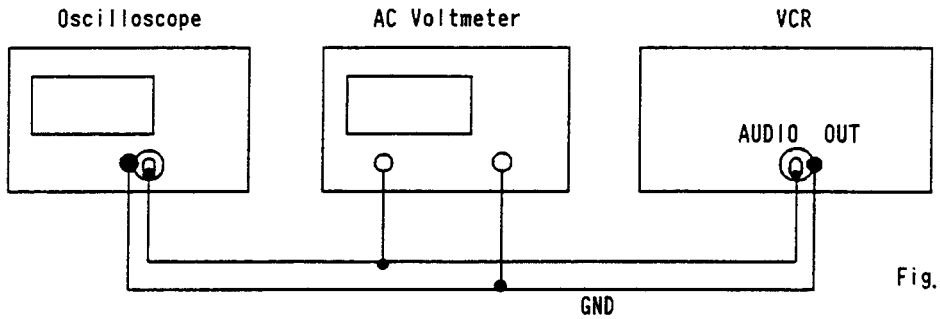


Fig. 5-13

1. Connect equipment as shown in Fig. 5-13.
2. Confirm that the tape running between the take-up guide roller and the audio control erase head has no slack. If the tape has slack, take it up by turning the tilt adjustment screw ©. (Refer to Fig. 5-7.) Then readjust GUIDE ROLLER HEIGHT in section 5-2 and the ✕ value in section 5-4.
3. After confirming on the oscilloscope that a 1 kHz audio signal is being output by playing back F6-A test tape, adjust the height adjustment nut Ⓐ so that the AC voltmeter's reading is brought to its maximum level. (Refer to Fig. 5-7.)

5-7 Audio Control Erase Head Azimuth Adjustment

Measuring Method

Measuring Point	Measuring Equip.	ADJ. Condition
Audio Output	Oscilloscope AC voltmeter	PLAY MODE Test tape F6-N

ADJ. Location	ADJ. Value
Azimuth adjustment nut	Maximum level (6KHz Audio Output Signal)

Test Equipment Connecting Diagrams

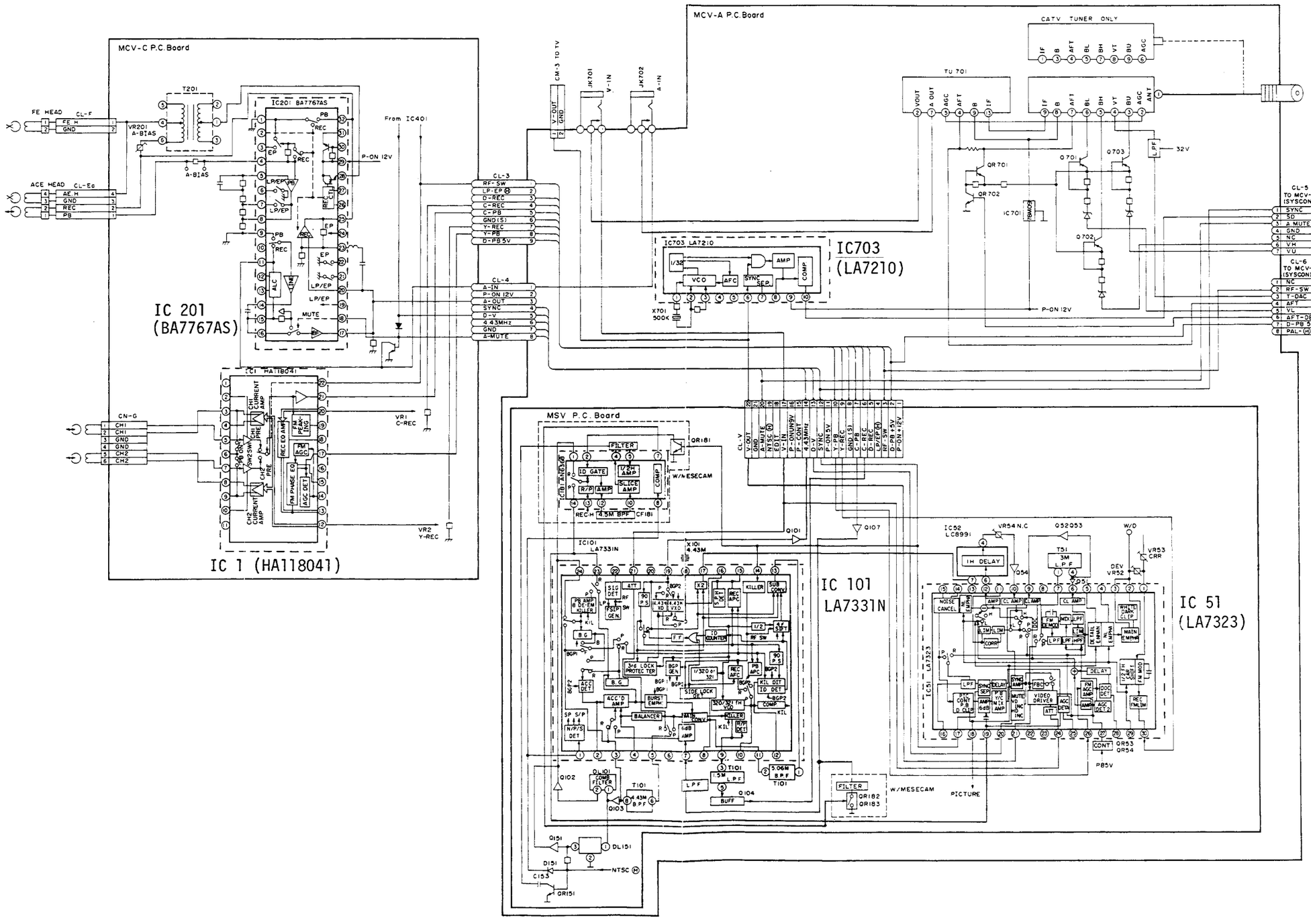
Refer to Fig. 5-13

1. After confirming on the oscilloscope that an audio signal is being output by playing back F6-N test tape, adjust the azimuth adjustment screw Ⓑ so that the AC voltmeter's reading or osilloscope waveform is brought to its maximum lebel (Refer to Fig. 5-7).

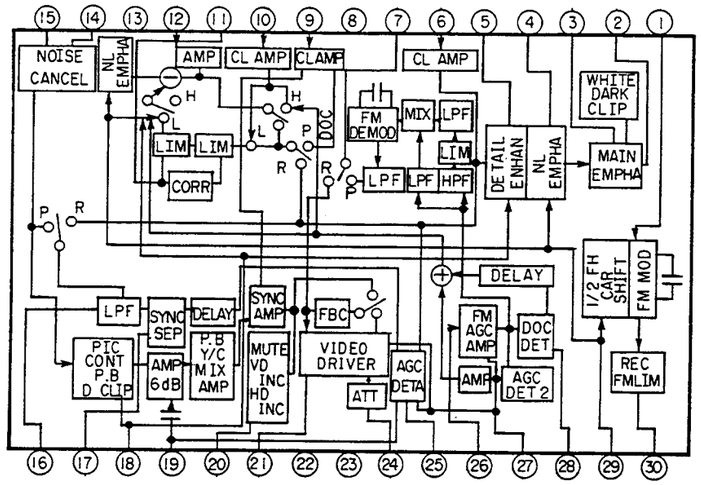
Note: Fix the screw Ⓒ with lock paint after readjustment (Refer to Fig. 5-7).

6. BLOCK DIAGRAM

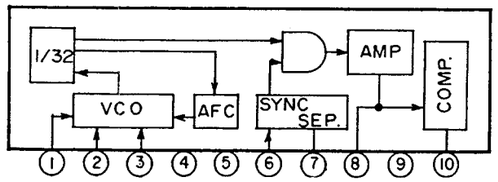
VIDEO/HEAD AMP/AUDIO/TUNER



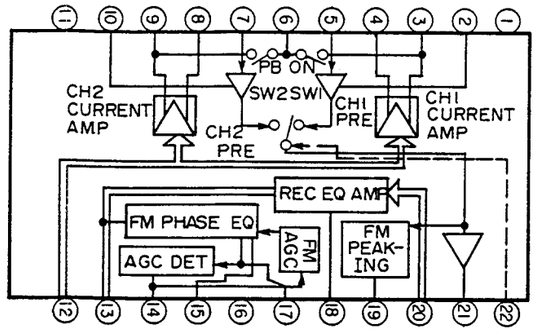
IC 51 (LA7323)



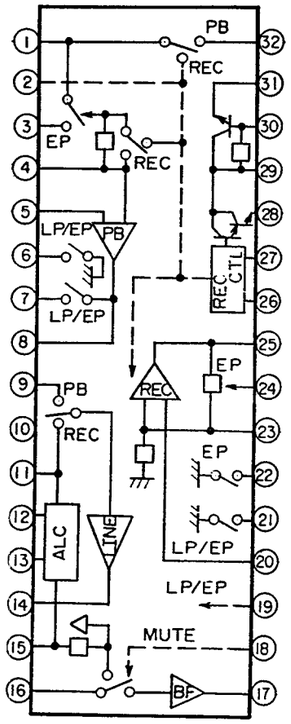
IC 703 (LA7210)



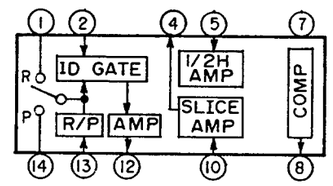
IC 1 (HA118041)



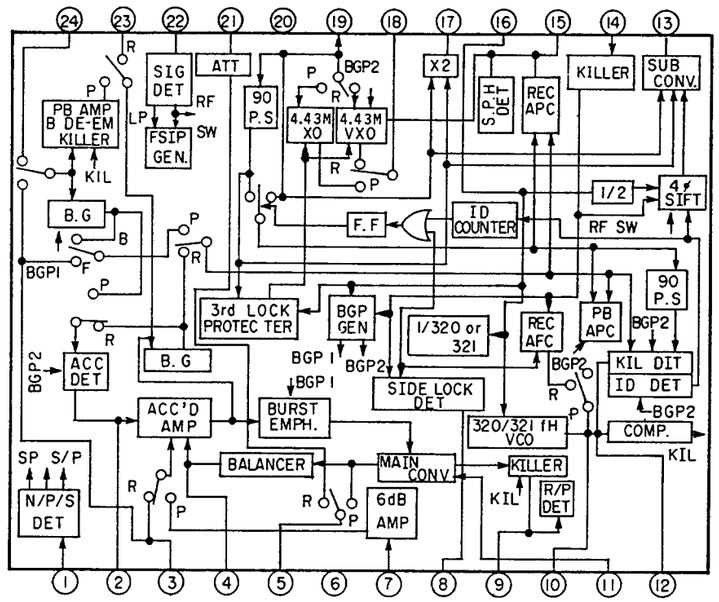
IC 201 (BA7767AS)



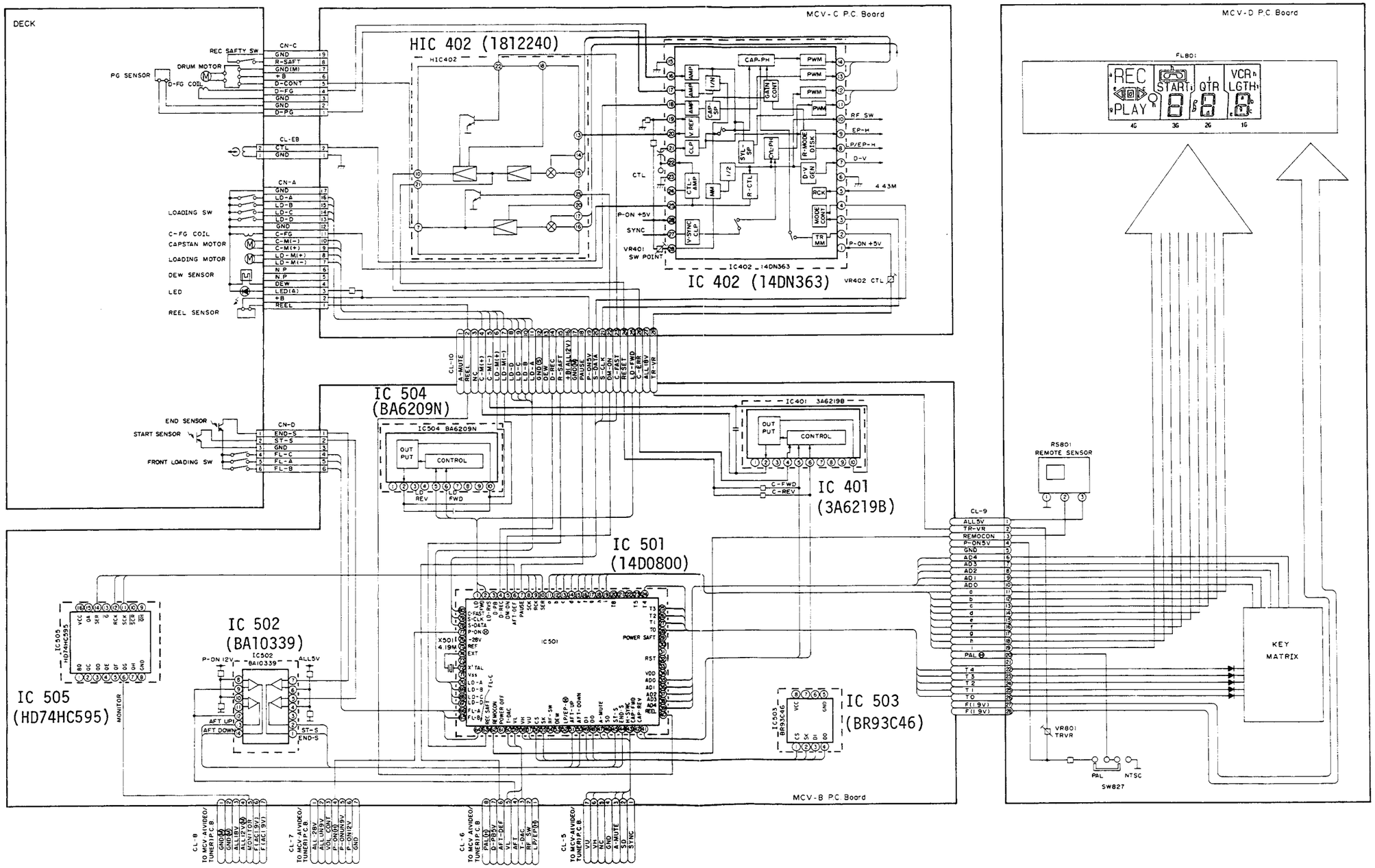
IC 181 (AN6368)



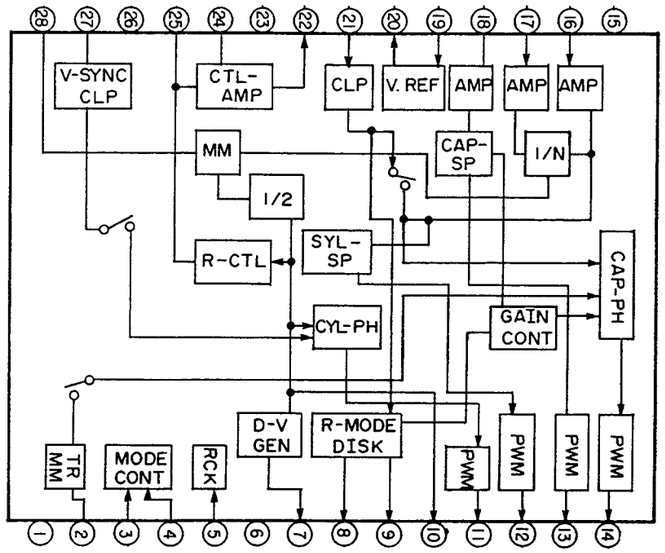
IC 101 (LA7331N)



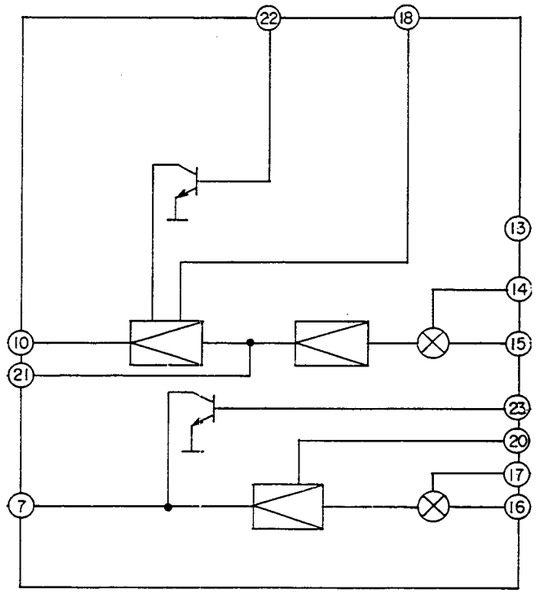
SERVO/SYSTEM CONTROL/FUNCTION



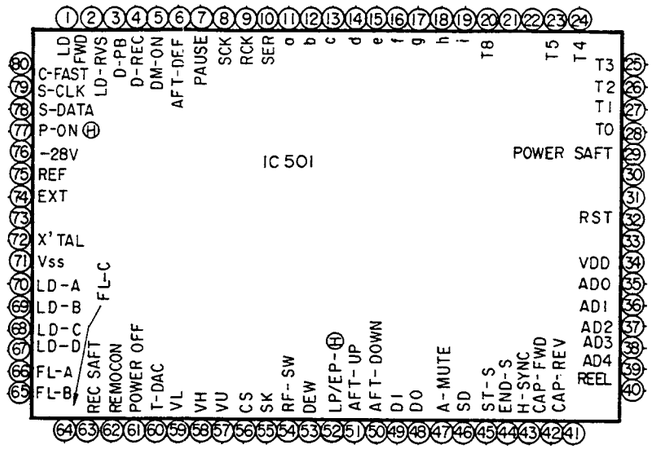
IC 402 (14DN363)



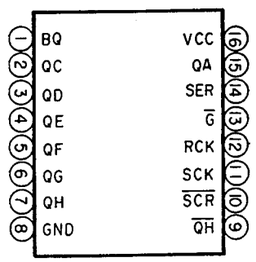
HIC 402 (1812240)



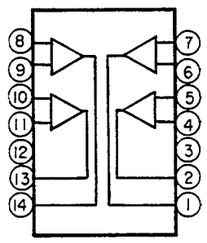
IC 501 (14D0800)



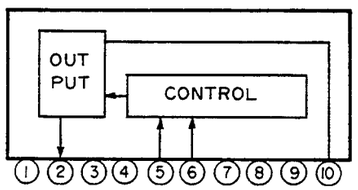
IC 505 (HD74HC595)



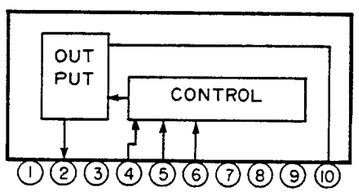
IC 502 (BA10339)



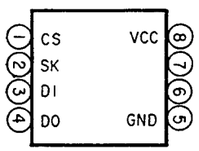
IC 504 (BA6209N)



IC 401 (3A6219B)

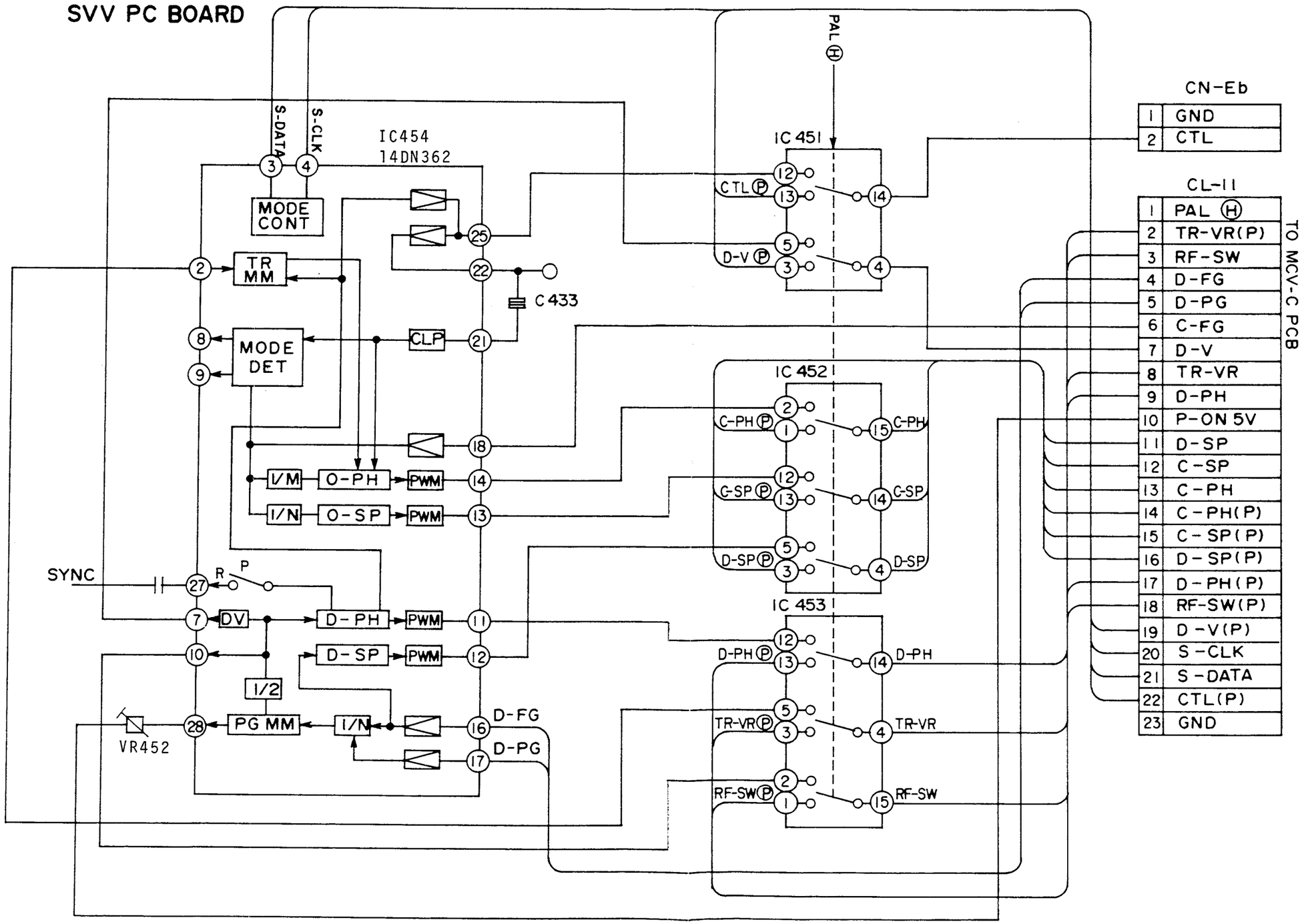


IC 503 (BR93C46)



3 SYSTEM (3 SYSTEM Model Only)

SVV PC BOARD



K2800-B3

7. IC PIN FUNCTION

14DN363 (SERVO IC) H : 5V L : 0V

Pin No	IN/OUT	Signal name	Function	Active Level
1	IN	V_{DD}	Power Terminal "H" Input (5V) Digital	H
2	IN	TRMM	Tracking Mono-mult Control (25Hz)	L
3	IN	SDAT	Mode Transfer (Data Signal)	H
4	IN	SCLK	Mode Transfer (Clock Signal)	H
5	IN	RCK	Clock Base (4.43MHz)	2.5V
6	IN	TEST	Test Input (GND)	H
7	OUT	D-V	Dummy V (50Hz)	L
8	OUT	MOD 0	REC Mode	~
9	OUT	MOD 1	REC Mode	~
10	OUT	HSW	Video Head Switch (25Hz)	~
11	OUT	PWM 2	Cylinder Servo Phase Error (34.5kHz)	~
12	OUT	PWM 1	Cylinder Servo Speed Error (69.4kHz)	~
13	OUT	PWM 3	Capstan Servo Speed Error (34.5kHz)	~
14	OUT	PWM 4	Capstan Servo Phase Error (34.5kHz)	~
15	IN	Vss	Power Terminal "L" Input (GND) Digital	L
16	IN	D-FG	Cylinder FG Amp (600Hz)	2.5V
17	IN	D-PG	Cylinder PG Amp (25Hz)	2.5V
18	IN	C-FG	Capstan FG Amp (504Hz)	2.5V
19	IN	RI	Reference Amp	2.5V
20	OUT	V-REF	Reference Amp	2.5V
21	IN	C 1	Control Peak Clamp	2.5V
22	OUT	C 0	Control F/R Amp (25Hz)	2.5V
23	IN	CTLG	Control GND	L
24	IN	CTLA	Play Control Head Amp (Negative Input)	2.5V
25	IN/OUT	CTLH	Play Control Head Amp Positive Input, REC Control Output	2.5V
26	IN	AV	Power Terminal "H" Input (5V) Analog	H
27	IN	V-SYNC	V-Sync Signal (50Hz)	2.5V
28	IN	RF-SW	PG Mono-mult Control	L

14D0800 (SYSTEM CONTROL TIMER IC)

Pin No	IN/OUT	Signal Name	Function	Active Level
1	OUT	LD-FWD	Tape Loading / Cassette Loading Motor Control	H
2	OUT	LD-RVS	Tape Loading / Cassette Loading Motor Control	H
3	OUT	D-PB	Play Control	L
4	OUT	D-REC	Record Control	H
5	OUT	DM-ON	Drum Rotation Output	L
6	OUT	AFT DEF	AFT Defeat Signal	H
7	OUT	PAUSE	Pause Control	H
8	OUT	SCK	Servo IC Timing Clock	L→H
9	IN	RCK	Clock Base (3.58MHz)	~
10	IN	SER	Serial Data Input	~
11	OUT	a	Display Segment Output	H
12	OUT	b	Display Segment Output	H
13	OUT	c	Display Segment Output	H
14	OUT	d	Display Segment Output	H
15	OUT	e	Display Segment Output	H
16	OUT	f	Display Segment Output	H
17	OUT	g	Display Segment Output	H
18	OUT	h	Display Segment Output	H
19	OUT	i	Display Segment Output	H
20	OUT	T8	Key Scan Signal Output	H
21	—	—	—	—
22	—	—	—	—
23	OUT	T5	Key Scan Signal Output	H
24	OUT	T4	Key Scan Signal Output	H
25	OUT	T3	Key Scan Signal Output	H
26	OUT	T2	Key Scan Signal Output	H
27	OUT	T1	Key Scan Signal Output	H
28	OUT	T0	Key Scan Signal Output	H
29	IN	POWER SAF	Power Abnormal Detector	L
30	—	—	—	—
31	—	—	—	—
32	IN	RST	Reset at Reset Signal Input "L", Normal at "H"	L
33	—	—	—	—
34	IN	VDD	5V (Power)	+5V
35	IN	AD 0	Key Scan Signal Input	H

Pin No	IN/OUT	Signal Name	Function	Active Level
36	IN	AD 1	Key Scan Signal Input	H
37	IN	AD 2	Key Scan Signal Input	H
38	IN	AD 3	Key Scan Signal Input	H
39	IN	AD 4	Key Scan Signal Input	H
40	IN	REEL	Control Input Pulse	~
41	IN	CAP REV	Capstan Motor Reverse	L
42	IN	CAP FWD	Capstan Motor Forward	L
43	IN	H SYNC	H Sync Signal Input	L
44	IN	END S	END Sensor on at "L"	L
45	IN	STS	Tape Start Position Detector	L
46	IN	SD	Tuner Video Signal SYNC Signal Input, "L" at SYNC Signal	L
47	OUT	A-MUTE	Audio Mute Signal	H
48	OUT	DO	Serial Data out	H
49	IN	DI	Serial Data in	H
50	IN	AFT DOWN	Tuner AFT Voltage Input, "L" at under 4V of AFT Voltage	L
51	IN	AFT UP	Tuner AFT Voltage Input, "H" at over 8V of AFT Voltage	H
52	IN	LP/EP-H	Tape Speed	H
53	IN	DEW	Dew Sensor	L
54	IN	RF-SW	Switching Pulse	H or L
55	IN	SK	Serial Data Clock	L or H
56	IN	CS	Chep Select	H or L
57	OUT	VU	Tuner Control Signal	H~
58	OUT	VH	Tuner Band Control Signal	H~
59	OUT	VL	Tuner Control Signal	H~
60	OUT	T-DAC	Tuner Tuning Voltage Control Signal	H or L
61	IN	POWER-OFF	"L" at Power Failure, "H" at Normal	L
62	IN	REMOCON	Remote Control Serial Signal Input	L
63	IN	REC-SAFETY	Erasure Prevention Switch	H
64	IN	FL-C	Cassette In Detector	L
65	IN	FL-B	Cassette Out Detector	L
66	IN	FL-A	Cassette Down Start Detector	L
67	IN	LD-D	Tape Loading Position Detector	L
68	IN	LD-C	Tape Loading Position Detector	L
69	IN	LD-B	Tape Loading Position Detector	L
70	IN	LD-A	Tape Loading Position Detector	L

Pin No	IN/OUT	Signal Name	Function	Active Level
71	IN	VSS	GND	0V
72	OUT	X'tal	Crystal Osillator 4.19MHz	~
73	—	——	——	—
74	IN	EXT	External	~
75	—	VDD	Power 5V	+5V
76	IN	-28V	-28V	-28V
77	OUT	P-ON-H	POWER-ON Control "H"	H
78	OUT	S-DATA	Servo IC Data	H／L
79	OUT	S-CLK	Servo IC Timing Clock	L→H
80	OUT	C-FAST	Capstan Motor High Speed	H

8. ALIGNMENT INSTRUCTIONS

NOTE :

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed.
Also, do not attempt these adjustments unless the proper equipment is available.

TEST EQUIPMEMT REQUIRED

1. Oscilloscope : Dual-trace with 10:1 probe.
2. TV Monitor
3. Pattern Generator (Color bar with 100% white)
4. AC Voltmeter (RMS)
5. Test Tape F6-A, F8-N
6. Spectrum Analyzer
7. Frequency Counter

8-1 SWITCHING POINT ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
V-OUT TP 2 (RF-SW) GND	VR401 (Switching Point) (MCV-C P. C. Board)	PLAY	F6-A	Fig. 8-1

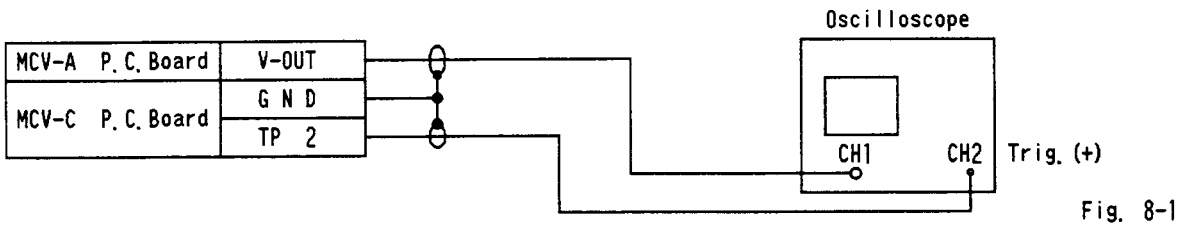
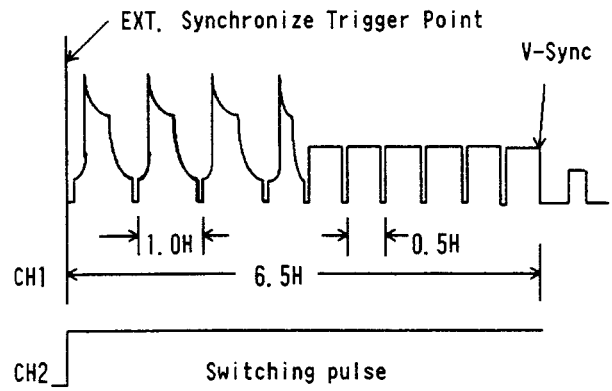


Fig. 8-1

1. Connect the equipment as shown in Fig. 8-1.
2. Set the input trigger mode to CH2 and set trigger slope to (+).
3. Tracking VR is center click position.
4. Playback the tape and adjust VR401 so that the V-sync front edge of CH1 video output waveform is delayed 6.5H(416μs) from the rising of CH2 Head Switching pulse waveform.



8-2 CTL PRESET ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 401 (CTL) TP 2 (RF SW) GND	VR402 (CTL) (MCV-C P. C. Board)	PLAY	F6-A	Fig. 8-2

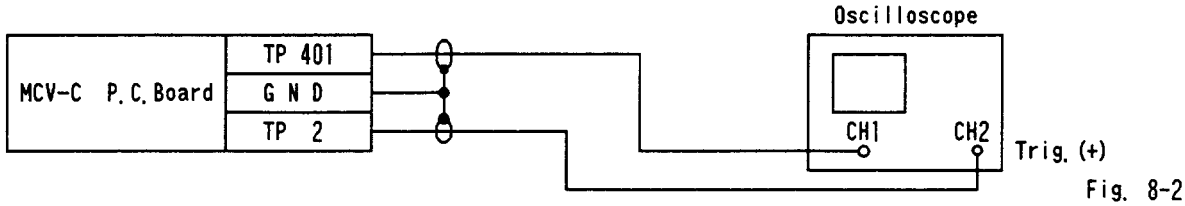
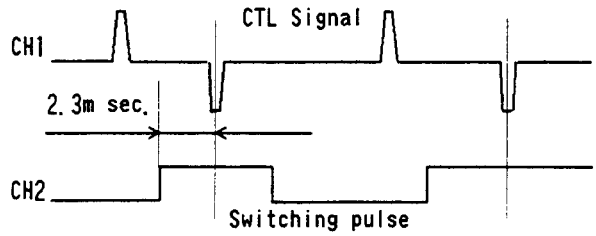


Fig. 8-2

1. Connect the equipment as shown in Fig. 8-2.
2. Set the input trigger mode to CH2 and set trigger slope to (-).
3. Set the tracking volume to the center click position.
4. Playback the tape and adjust VR402 to make the rising point of CH1 CTL signal where delated 2.3msec. from the sitting of CH2 RF Switching pulse.



8-3 E-E LEVEL ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
V-OUT GND	VR 55 (E-E) (MSV P. C. Board)	E-E	—	Fig. 8-3

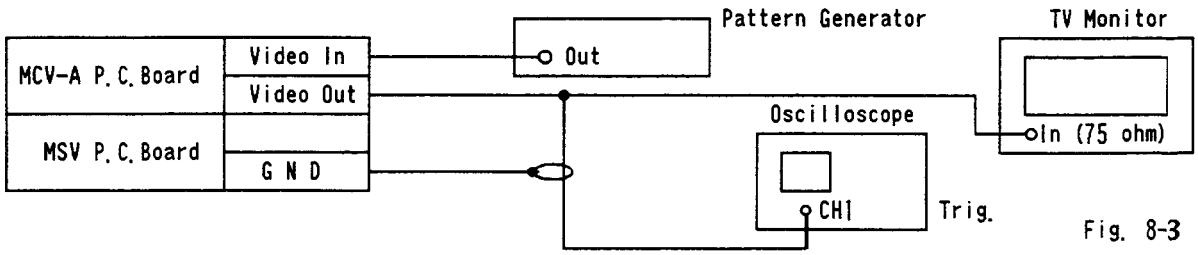
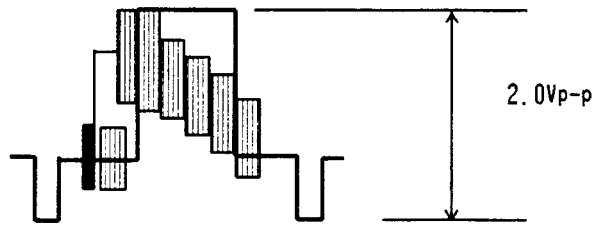


Fig. 8-3

1. Connect the equipment as shown in Fig. 8-3.
2. Input Color Bar signal with 100% white to Video Input.
3. Adjust VR55 so that the video level becomes 2.0Vp-p±0.05V.



8-4 NOISE CANCEL ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 52 (N. C) TP 53 (N. C) GND	VR 54 (N. C) (MSV P. C. Board)	PLAY	F6-A	Fig. 8-4

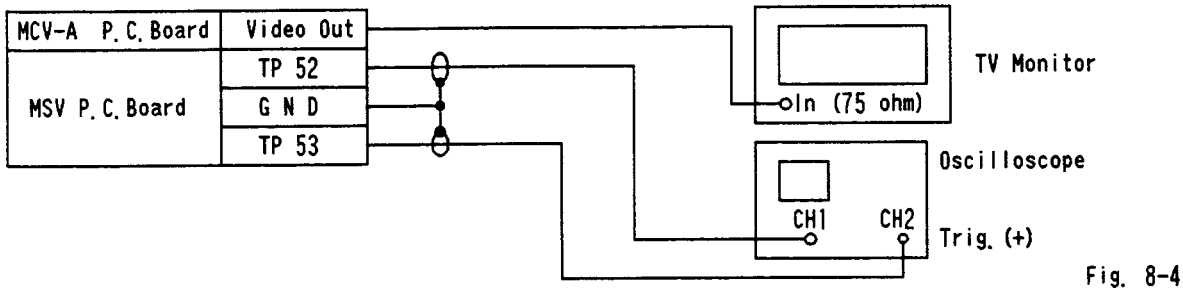


Fig. 8-4

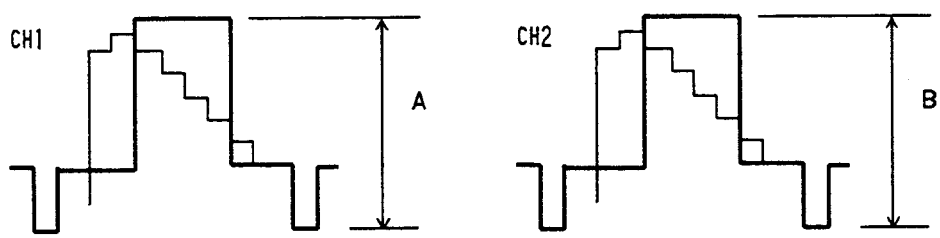
Note : Adjust the Noise Cancel for choise (1) or (2).

(1)

1. Connect the equipment as shown in Fig. 8-4.
2. Set the input trigger mode to CH2 and set trigger slope to (+).
3. Invert CH2 signal(TP53) and select ADD mode.
4. Playback the tape and adjust VR54 so that the level becomes minimum.

(2)

1. Connect the equipment as shown in Fig. 8-4.
2. Set the input trigger mode to CH2 and set trigger slope to (+).
3. Playback the tape and adjust VR54 so that the output levels(A, B) of both channels become the same.



8-5 P. B. OUTPUT LEVEL ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
V-OUT GND	VR 53 (P. B.) (MSV P. C. Board)	PLAY	F6-A	Fig. 8-5

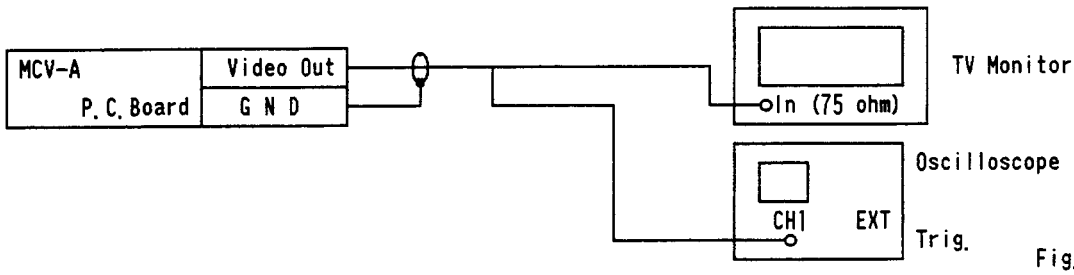
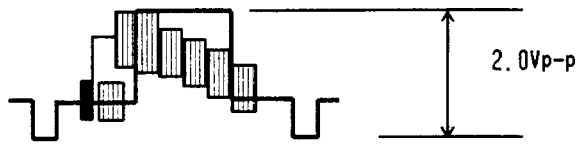


Fig. 8-5

1. Connect the equipment as shown in Fig. 8-5.
2. Adjust VR53 so that the video level becomes 2.0Vp-p±0.05 V.



8-6 REC. CURRENT ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 1 (REC Level) TP 2 (RF SW) GND	VR 2 (Y-REC) (MCV-C P. C. Board) VR 1 (C-REC) (MCV-C P. C. Board)	REC.	Blank tape	Fig. 8-6

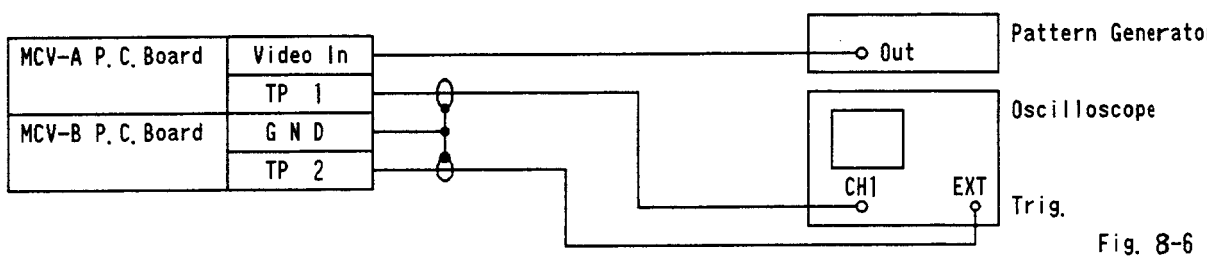
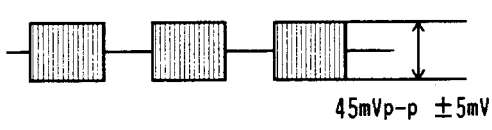
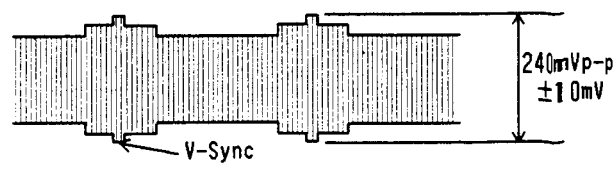


Fig. 8-6

1. Connect CH1 of oscilloscope across TP1 and Ground.
2. Connect EXT. Trigger of oscilloscope across TP 2 and Ground.
3. Turn VR 1 fully clockwise.
4. Input red only signal to VIDEO INPUT.
5. Adjust VR 2 so that chroma level becomes 45mVp-p ±5mV.
6. Input color bar signal with 100% white to VIDEO INPUT.
7. Adjust VR 1 so that V-Sync level becomes 240mVp-p±10mV.





8-7 REC. BIAS CURRENT ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP201 (BIAS ⊕) TP202 (BIAS ⊖)	VR201 (BIAS) (MCV-C P. C. Board)	REC. (SP)	Blank tape	Fig. 8-7

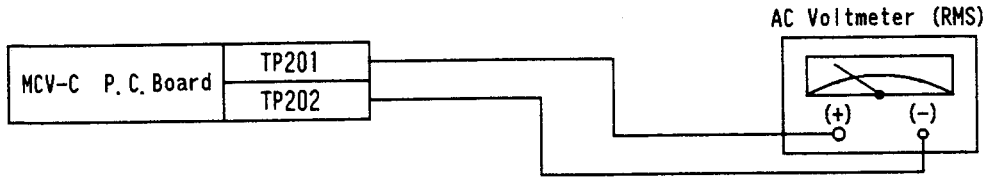


Fig. 8-7

1. Connect the equipment as shown in Fig. 8-7.
2. Insert a blank tape and set the VCR to REC mode.
   (Do not set to PAUSE. In PAUSE mode, the bias oscillation is stopped.)
3. Adjust VR201 so that the voltage becomes 22mV.

8-8 FM CARRIER DEVIATION ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 1 (CRR/DEV) TP 2 (RF-SW) GND	VR51 (CRR) VR52 (DEV) (MSV P. C. Board)	REC. (SP)	Blank tape	Fig. 8-8

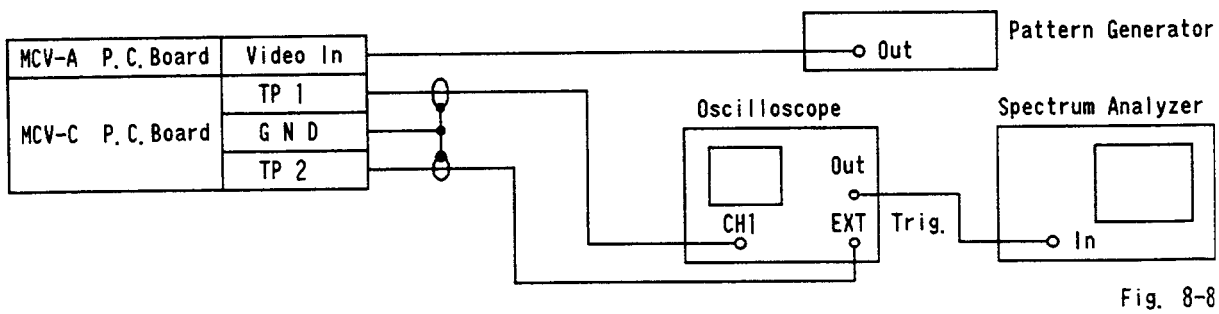
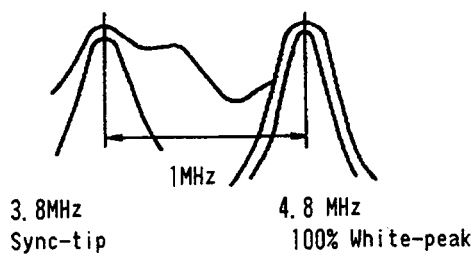


Fig. 8-8

1. Connect the equipment as shown in Fig. 8-8.
2. Input color bar signal with 100% white to Video Input.
3. Adjust Sync-tip to 3.8MHz±20kHz by VR 52, White-peak to 4.8 MHz ±20kHz by VR51.



8-9 SECAM 1/2f TUNE ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP181 (SECAM, CH1) TP 2 (RF-SW)	L181 (MESESCAM) (MSV P.C.Board)	REC.	Blank Tape	Fig. 8-9

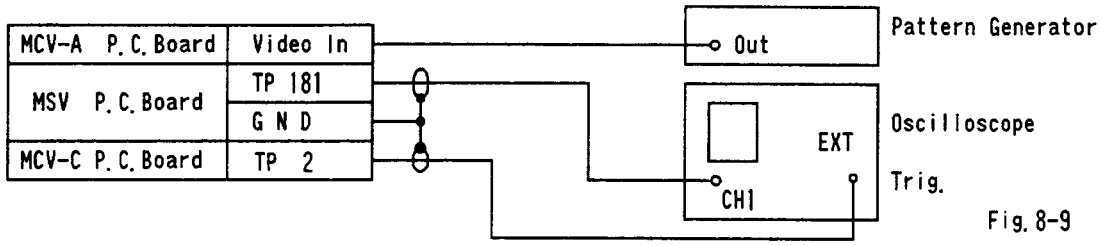
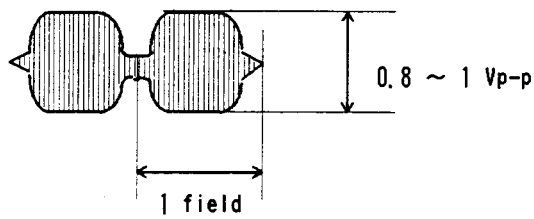


Fig. 8-9

1. Connect CH1 of oscilloscope across TP181 and Ground.
2. Connect EXT. Trigger of oscilloscope across TP401 and Ground.
3. Input SECAM color bar signal VIDEO IN.
4. Adjust by L181 so that ouput level becames maximum.



* Note : Require this adjustment for MESECAM model only.

3-System Model Only (NTSC Selector)

8-10 SWITCHING POINT ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
V-OUT TP 2 (RF-SW) GND	VR452 (Switching Point) (SVV P. C. Board)	PLAY	F8-N	Fig. 8-10

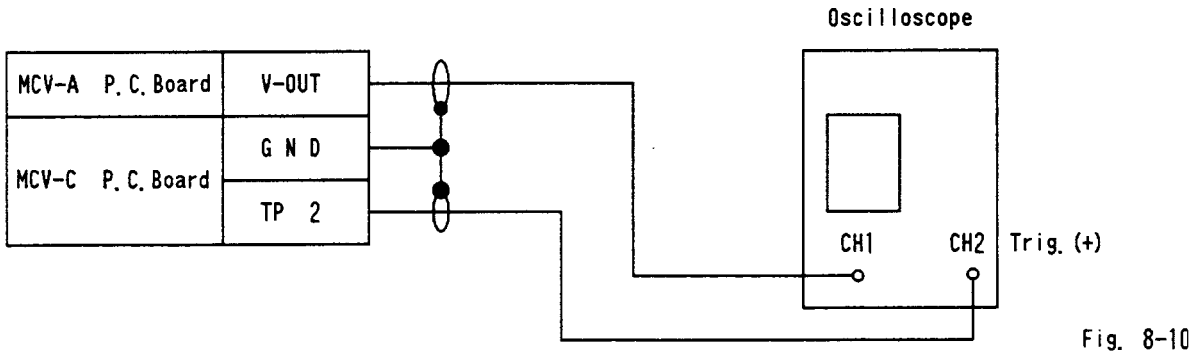
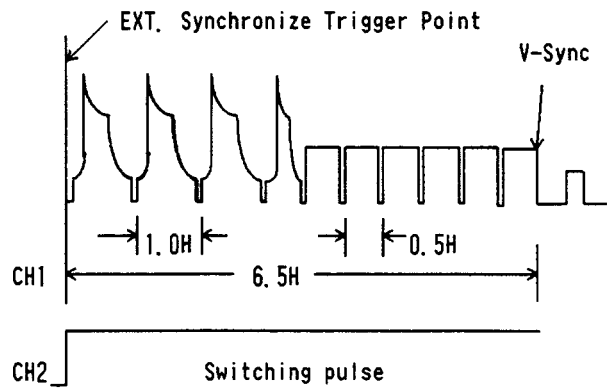


Fig. 8-10

1. Connect the equipment as shown in Fig. 8-10.
2. Set the input trigger mode to CH2 and set trigger slope to (+).
3. Tracking VR is center click position.
4. Playback the tape and adjust VR452 so that the V-sync front edge of CH1 video output waveform is delayed 6.5H(416μs) from the rising of CH2 Head Switching pulse waveform.



8-11 CTL PRESET ADJUSTMENT

Test Point	Adjustment Point	Mode	Test Tape	Connection Figure
TP 451 (CTL) TP 2 (RF SW) GND	VR451 (CTL) (SVV P. C. Board)	PLAY	F8-N	Fig. 8-11

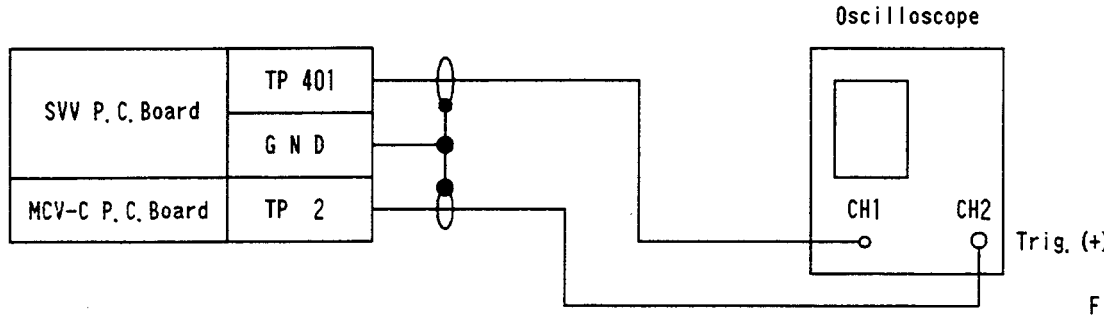
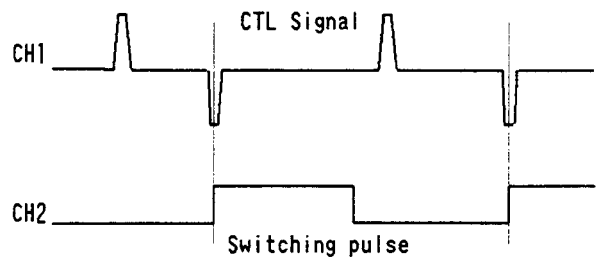


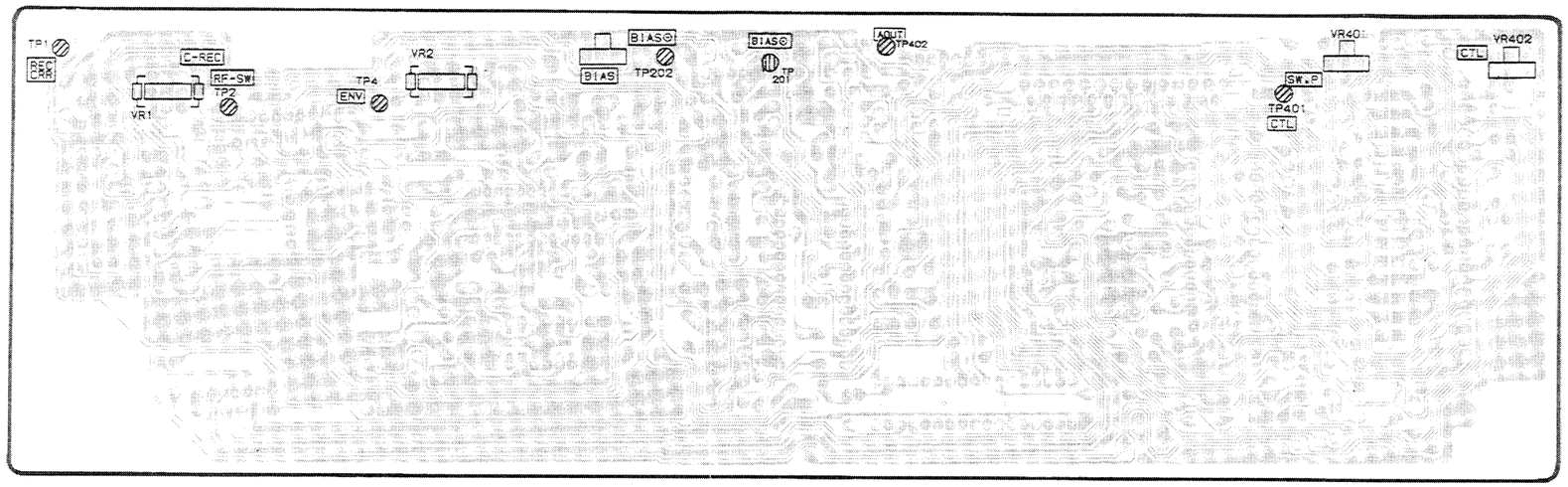
Fig. 8-11

1. Connect the equipment as shown in Fig. 8-11.
2. Set the input trigger mode to CH2 and set trigger slope to (-).
3. Set the tracking volume to the center click position.
4. Playback the tape and adjust VR452 to make the rising point of CH1 CTL signal where delated 0msec. from the sitting of CH2 RF Switching pulse.



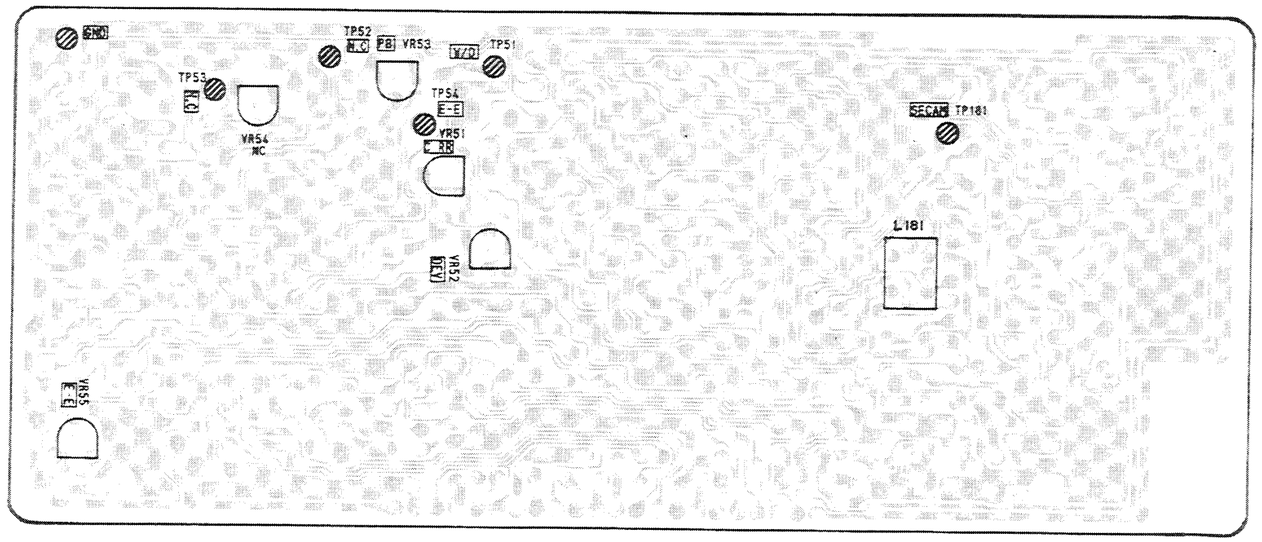
9. TEST POINT

MCV-C PCB



922C

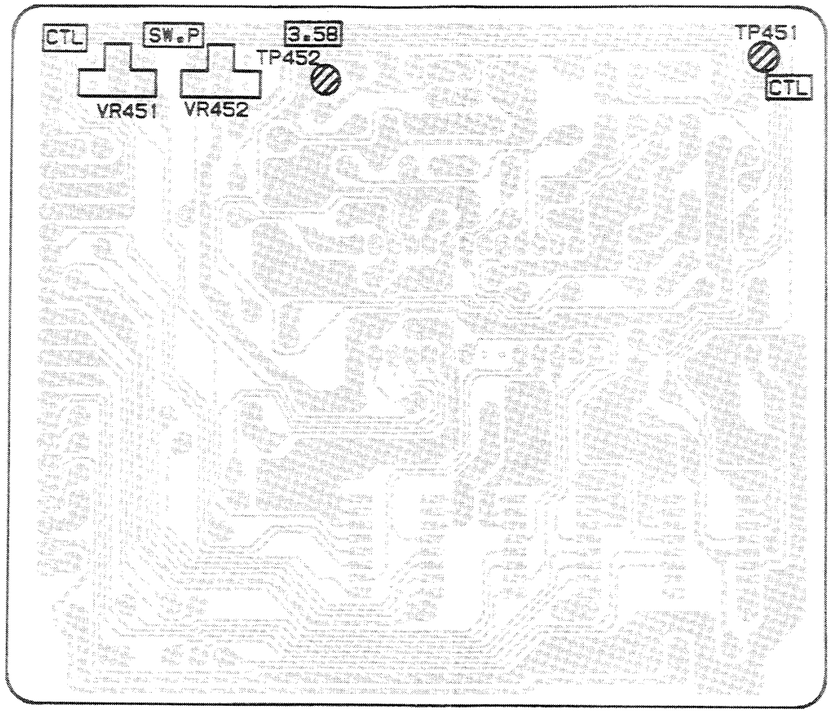
MSV PCB



927

SVV PCB

(3 SYSTEM Model Only)



982

10. P.C.BOARD TOP AND BOTTOM VIEWS

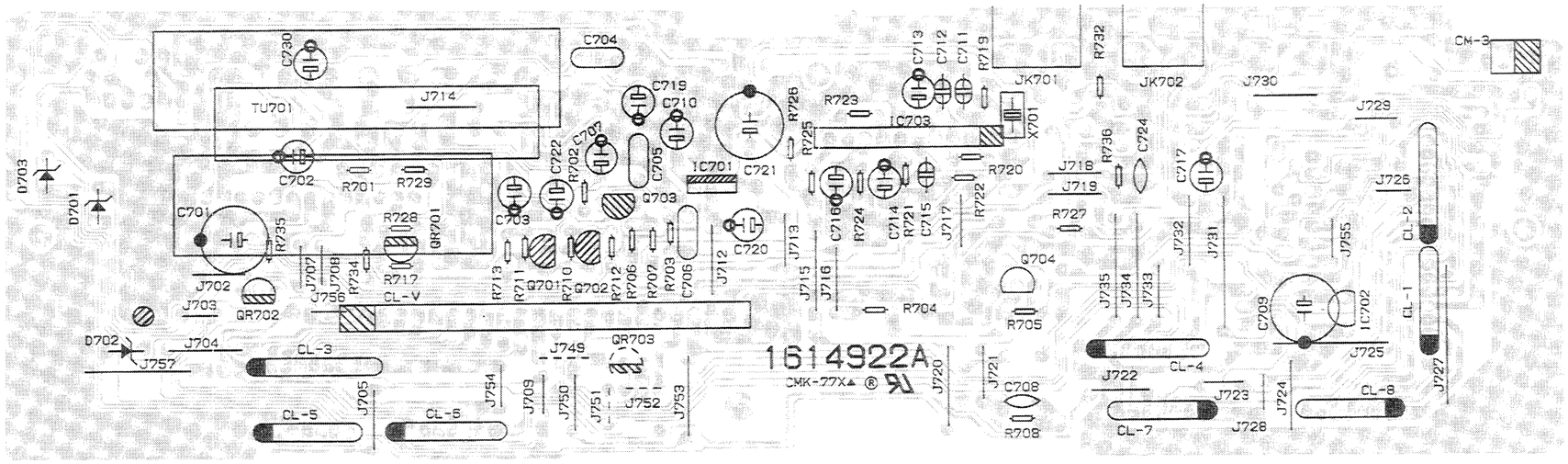
MCV-A PCB

TOP VIEW

☆ Capacitor and transistor are noted with follow symbols.

: Cap.Electrolytic : E C B PNP : Transistor : E C B DTA : Digital Transistor

: E C B NPN : Transistor : E C B DTC : Digital Transistor

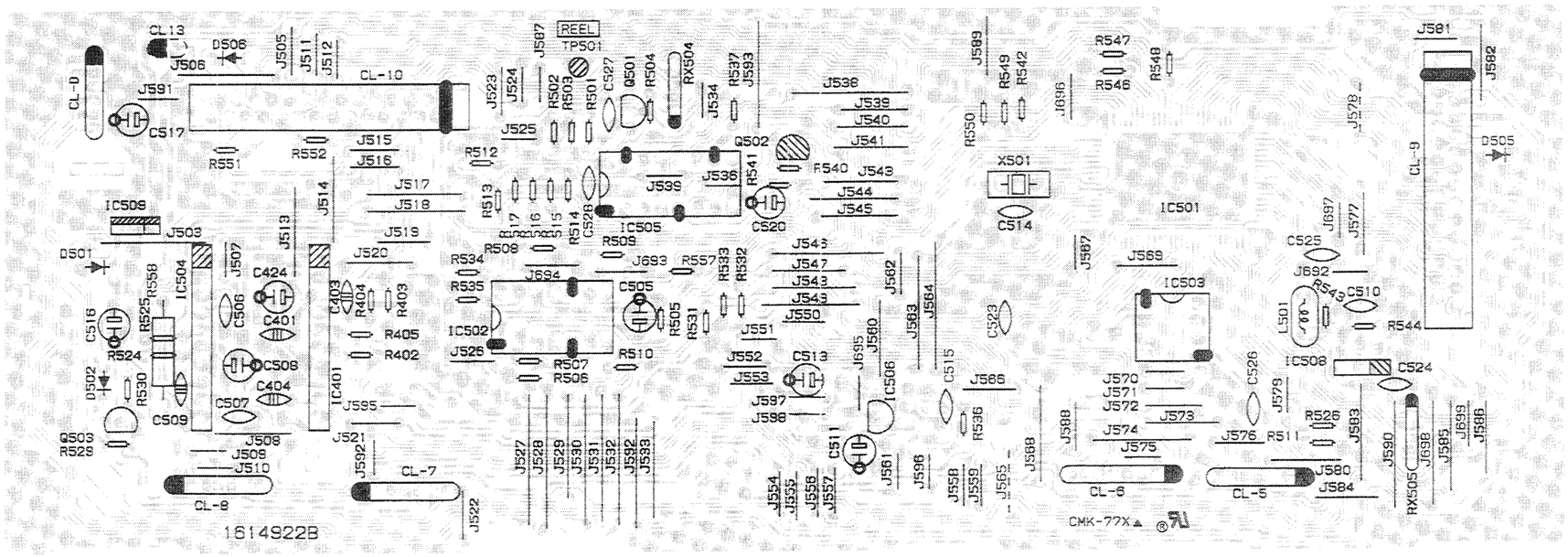


922A

— — — — 3 System Model Only

MCV-B PCB

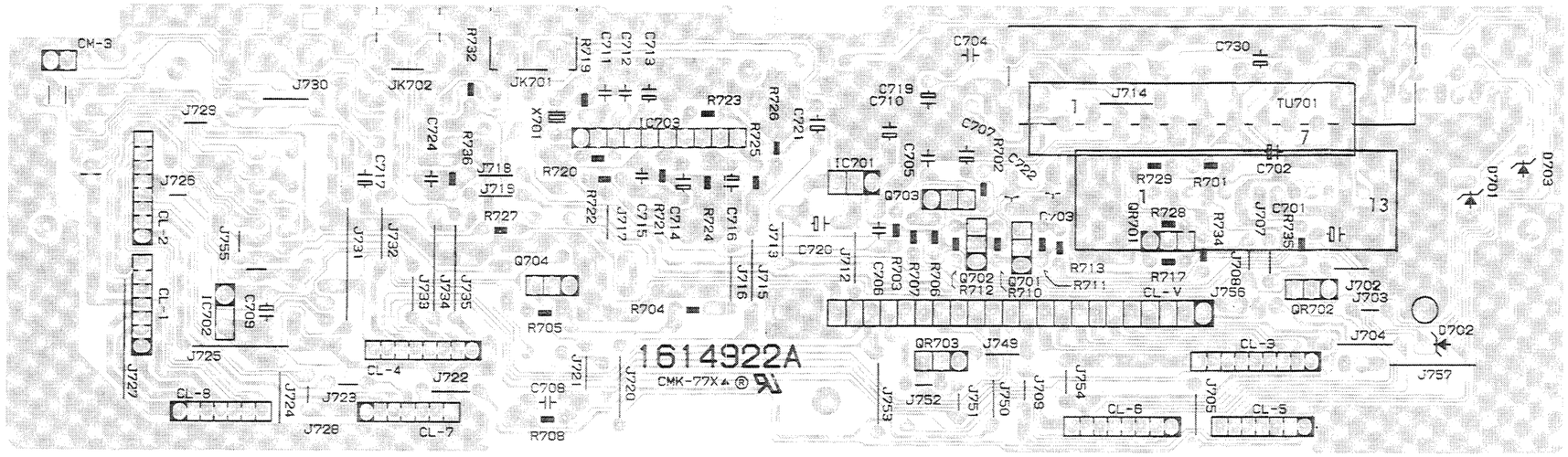
TOP VIEW



922B

— — — — 3 System Model Only

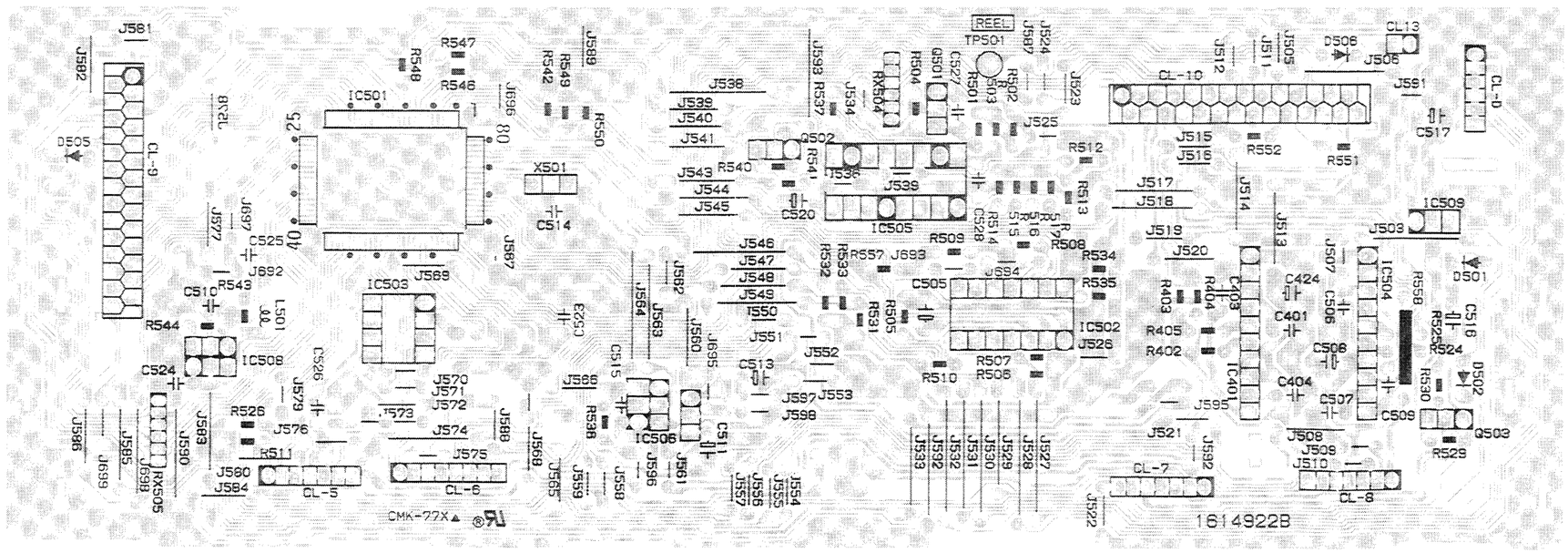
BOTTOM VIEW



922A

– – – – CATV Model Only

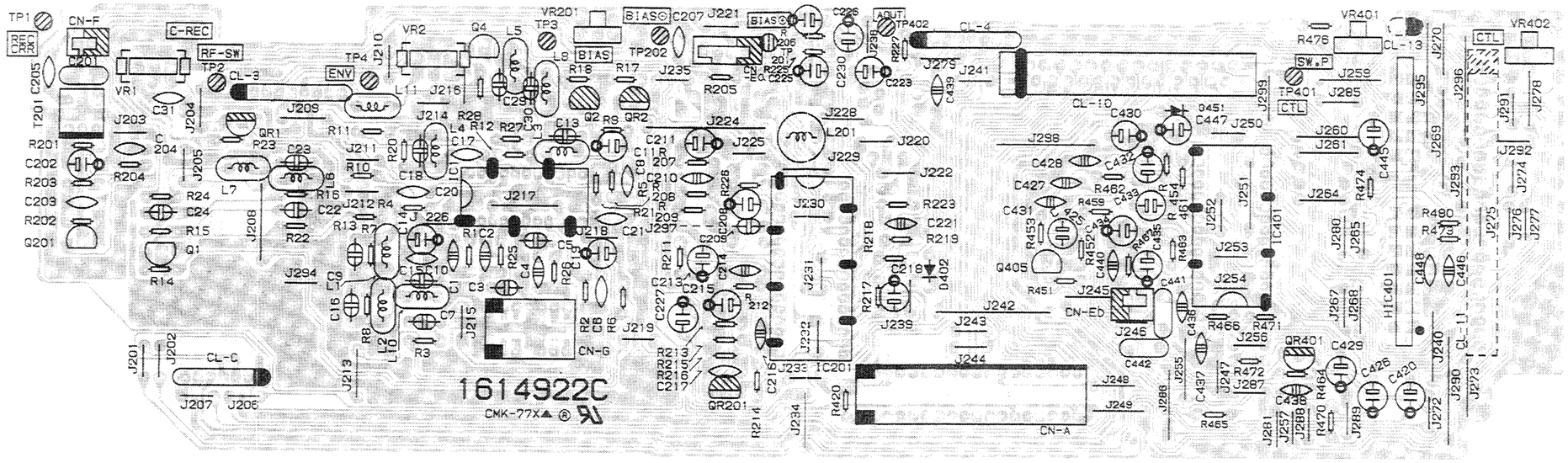
BOTTOM VIEW



922B

MCV-C PCB

TOP VIEW

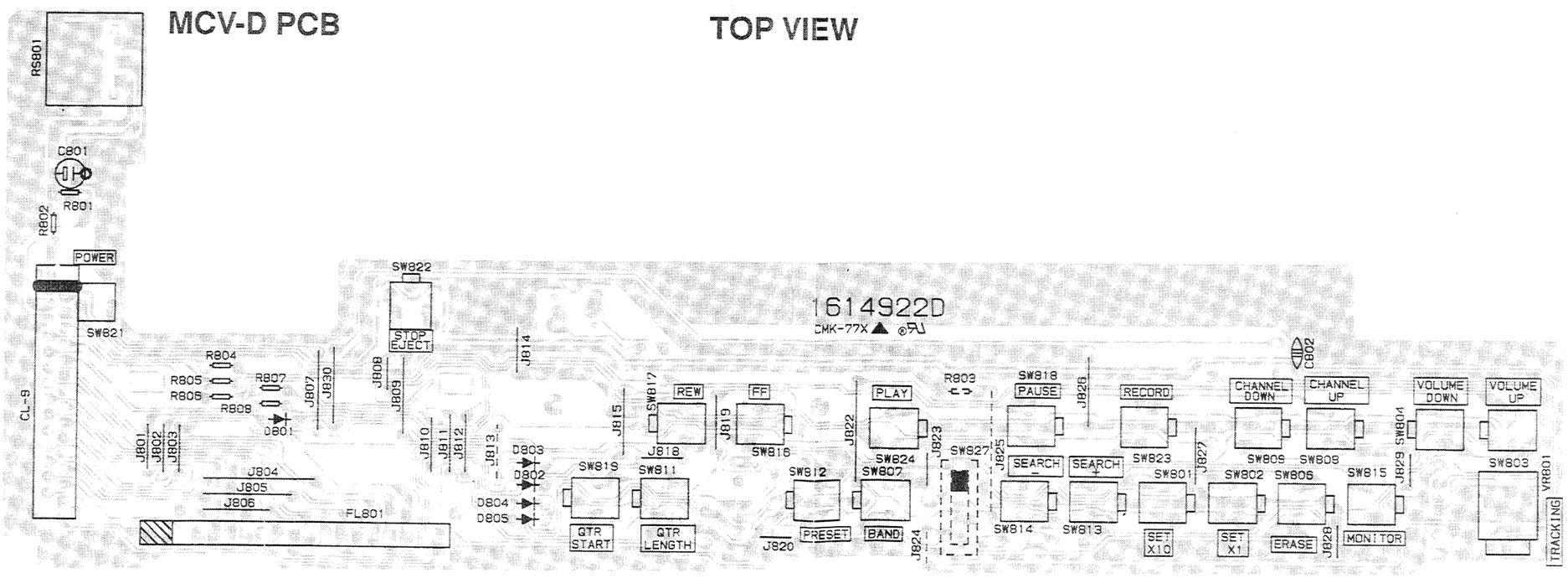


922C

— — — — 3 System Model Only

MCV-D PCB

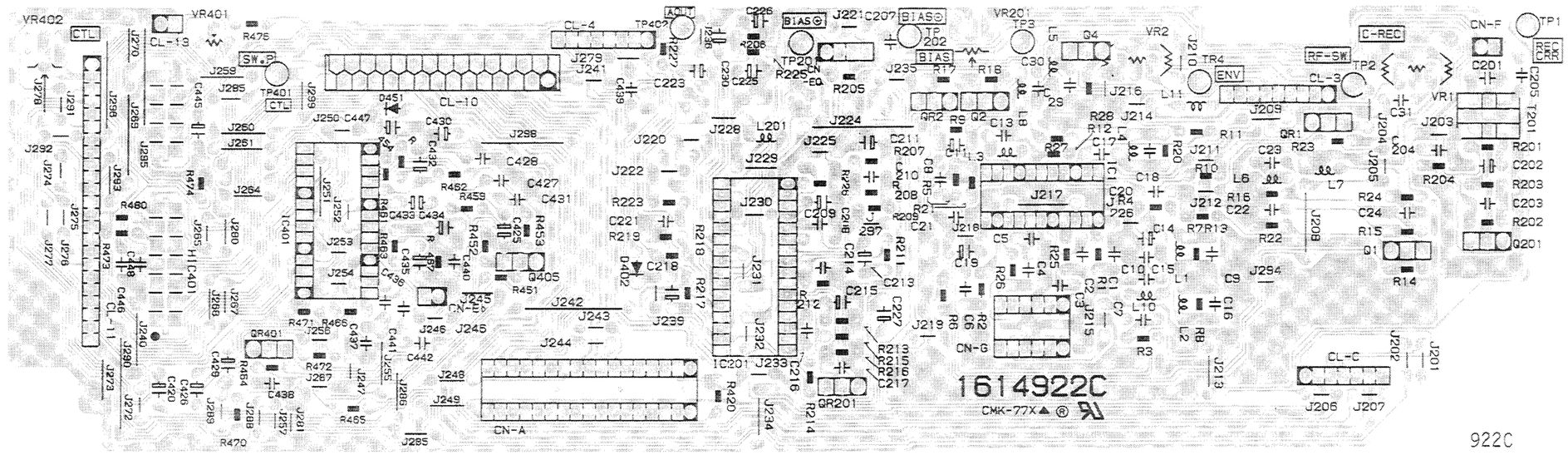
TOP VIEW



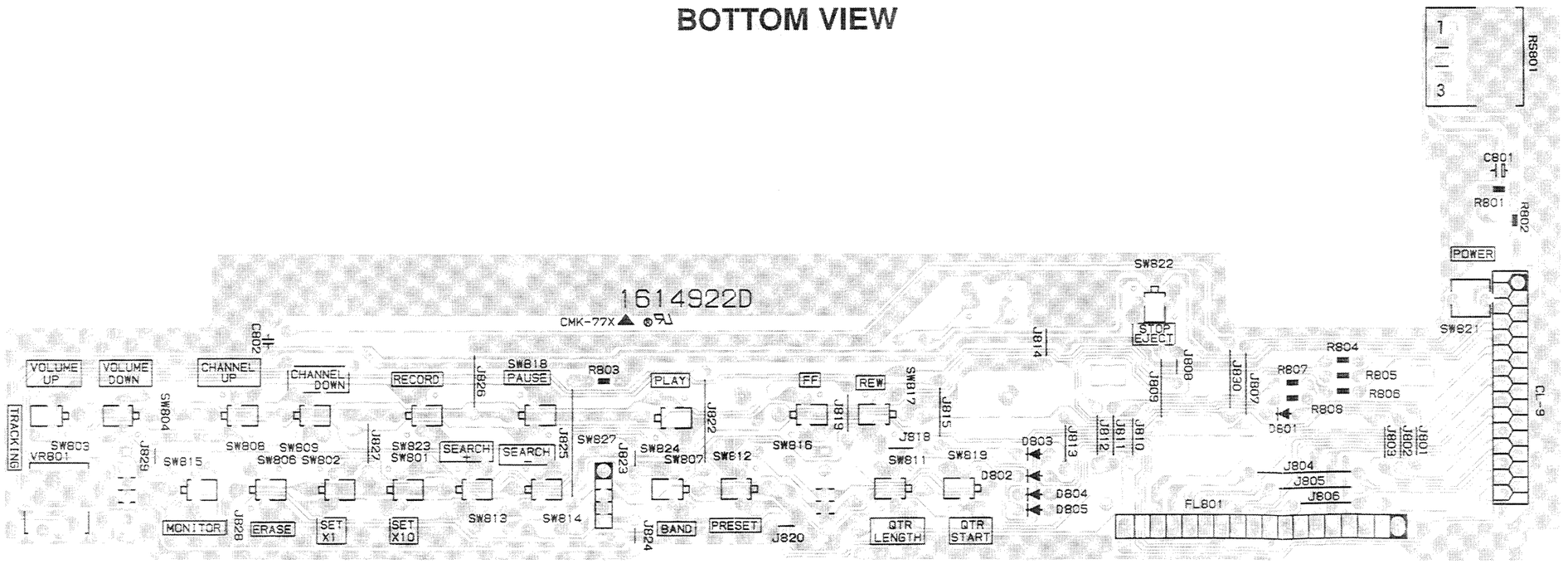
922D

— — — — 3 System Model Only

BOTTOM VIEW

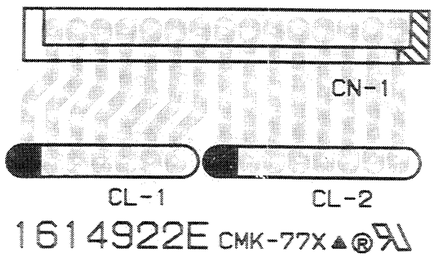


BOTTOM VIEW



MCV-E PCB

TOP VIEW

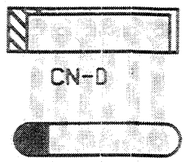


1614922E CMK-77X▲®

922E

MCV-F PCB

TOP VIEW

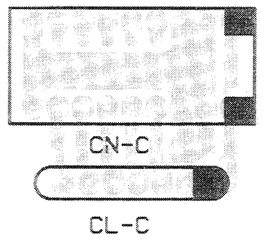


1614922F

922F

MCV-G PCB

TOP VIEW

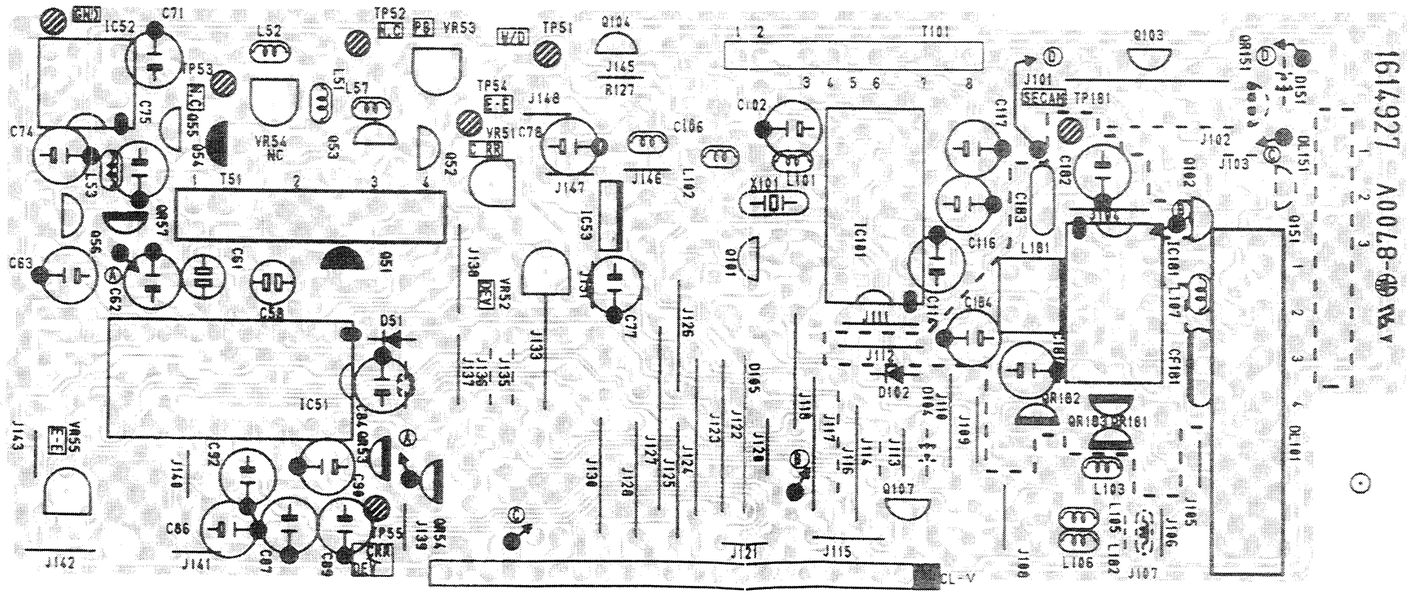


1614922G

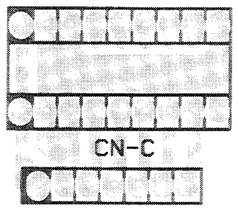
922G

MSV PCB

TOP VIEW



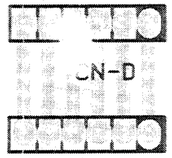
BOTTOM VIEW



1614922G

922G

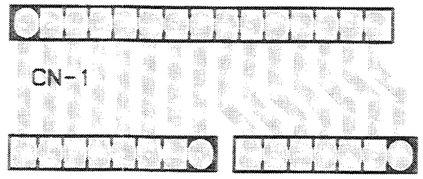
BOTTOM VIEW



1614922F

922F

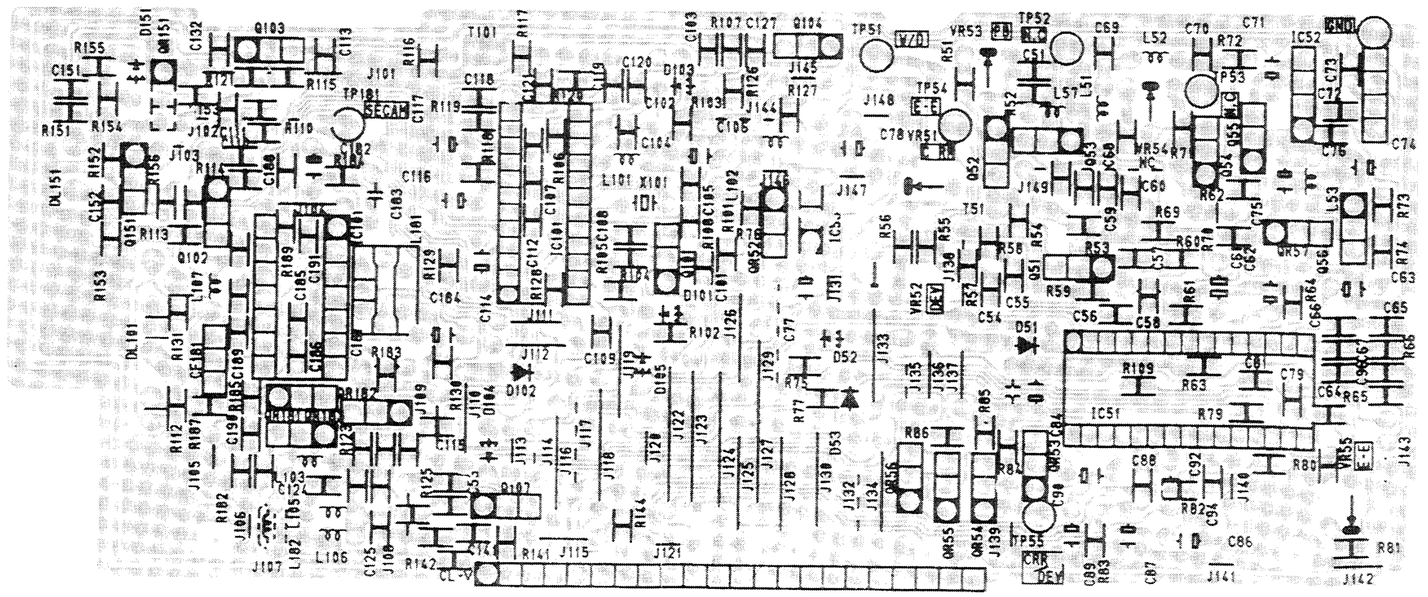
BOTTOM VIEW



1614922E CMK-77X▲

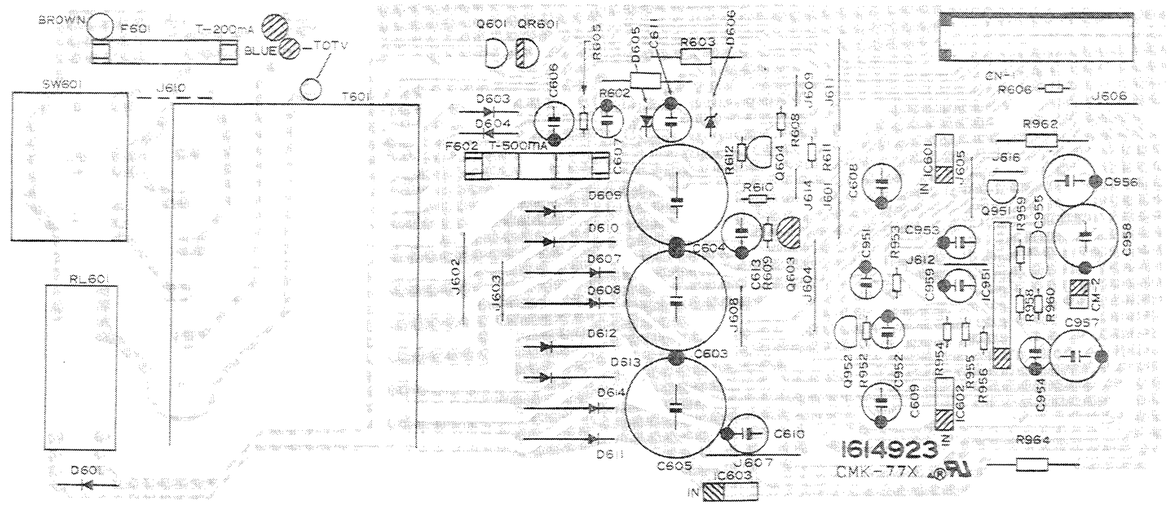
922E

BOTTOM VIEW



927

PSV PCB TOP VIEW

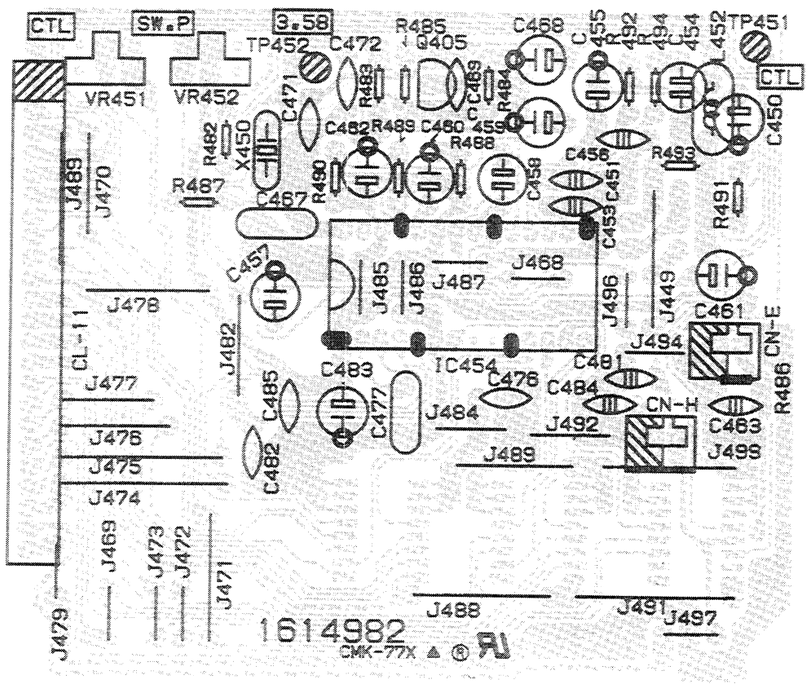


923

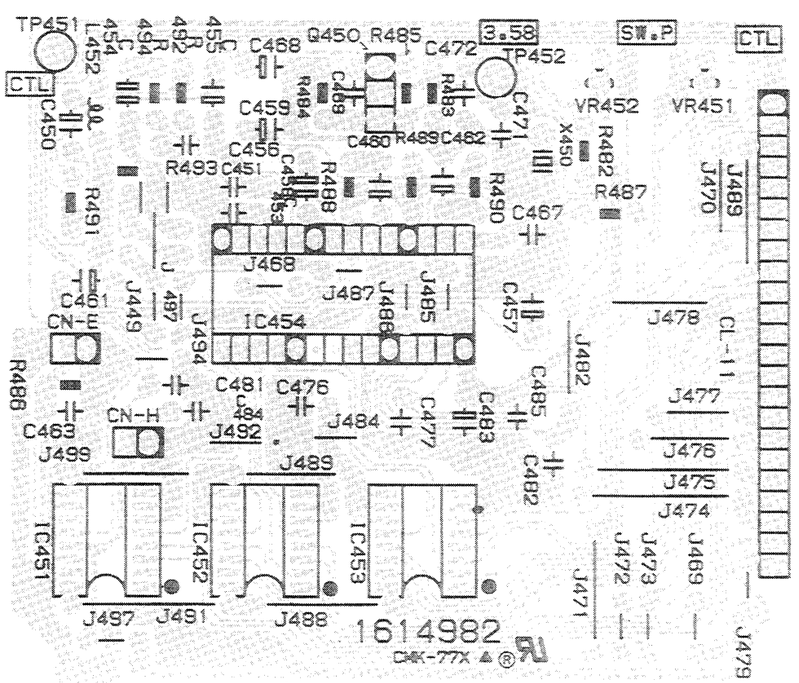
— — — — 3 System Model Only

SVV PCB (3 SYSTEM Model Only)

TOP VIEW

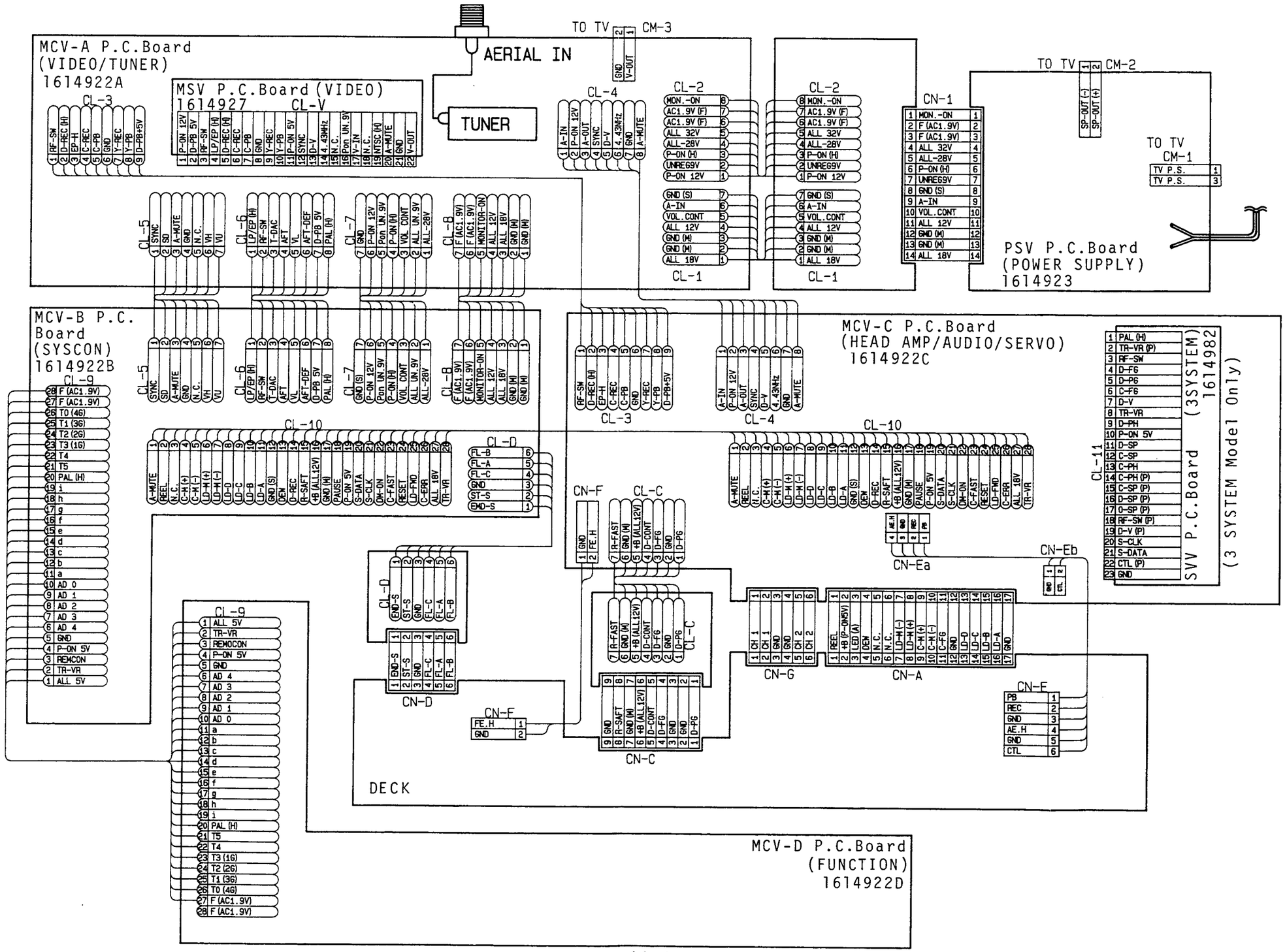


BOTTOM VIEW

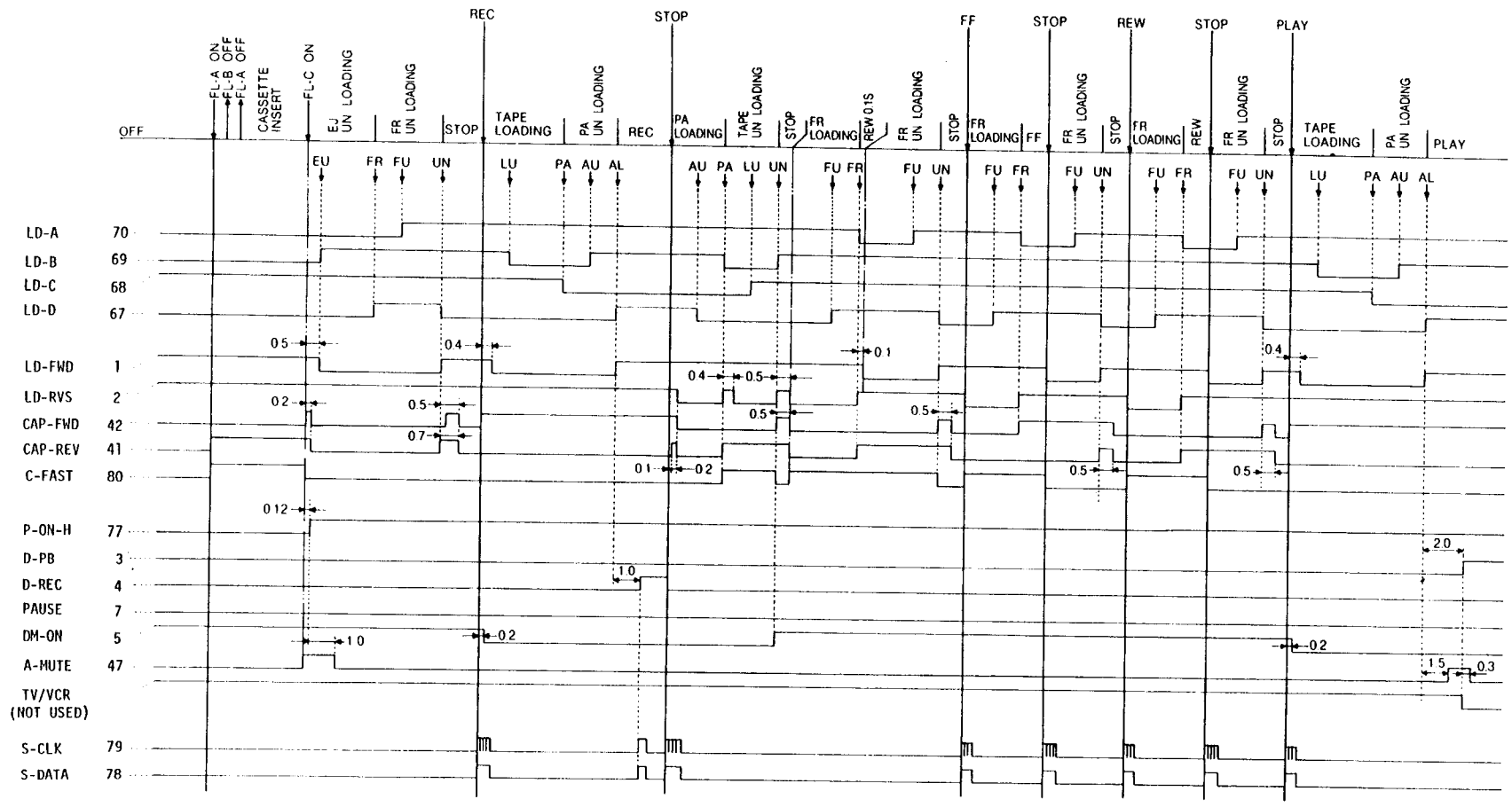


982

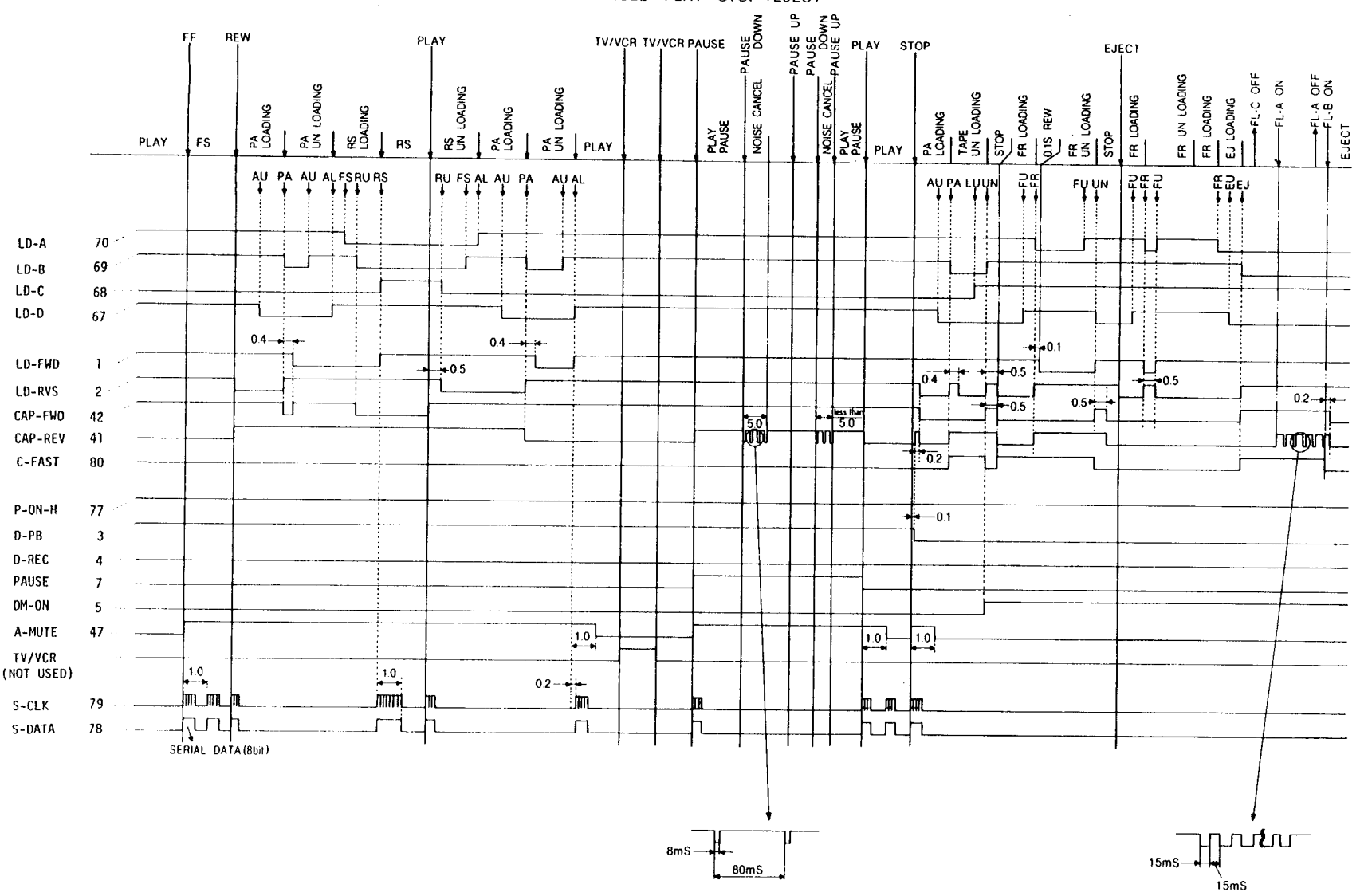
11. WIRING DIAGRAM



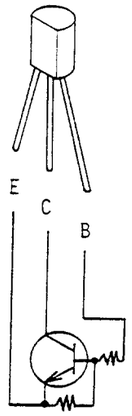
1 OFF→CASSETTE INSERT→REC→STOP→FF→STOP→REW→STOP→PLAY



2 PLAY→FF(FS)→REW(RS)→PLAY→TV/VCR→PAUSE→NOISE CANCEL→PLAY→STOP→EJECT

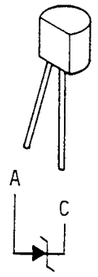


13. LEAD IDENTIFICATIONS



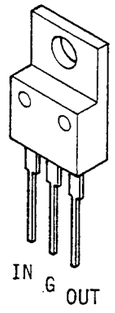
2SA608 2SB892 DTA114
2SA854 2SB1010 DTA124
2SA933 2SC536 DTA143
2SA934 2SC1740 DTA144
2SA1016 2SC1741 DTC114
2SA1038 2SC2058 DTC124
2SA1317 2SC2060 DTC143
2SA1346 2SC2808 DTC144
2SA1585 2SC2839 A1346
2SD1384 2SC3393 2SD400
2SD1468 2SC3400 2SD1012
2SD1207

PST529
T529D
T529C

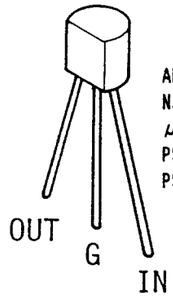


L5631

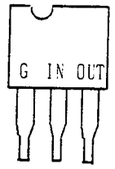
A:Anode
C:Cathode



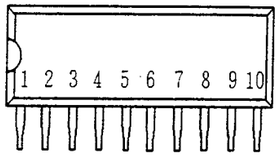
AN7812 μpc7812
AN7805 μpc7805
AN7818 μpc7818
AN78M09 μpc78M05
AN78M05
NJM7812
NJM7805
NJM7818
NJM78M05
NJM78M09



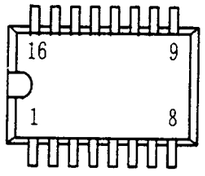
AN78L05 AN78L18
NJM78L05A NJM78L18
μpc78L05J AN78L06
PST529G-2 NJM78L06
PST529C-2



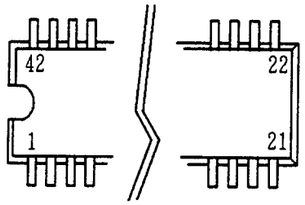
MN1280



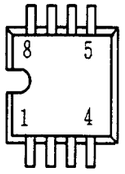
LA7210
BA6209N



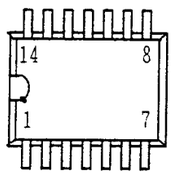
AN78N05 MN1225 NJM4053
BU4052 MN1224 NJU4053BD
BU4053 MN4053B IR2E27
LA7913 MN4051B MN12201
LB1408



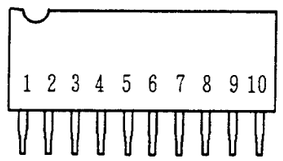
FEVSE14DN478
CXA1124AS
FEVSY14DN486



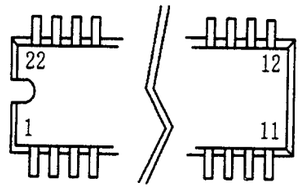
BA728 X24C01
LC8991
MSM7400
LC8992
BA728
BR93C46



AN6912 NJM2901N SN76670N
BA10339 NJU4013BD NJM2901N
BU4013B SAF1135P AN6368
BU4066B SDA5640 SDA5642
LA6339 MN4011BD TBA120U
MN4013B BU4011BD BA6405
MN4066B NJU4011BD BA10324

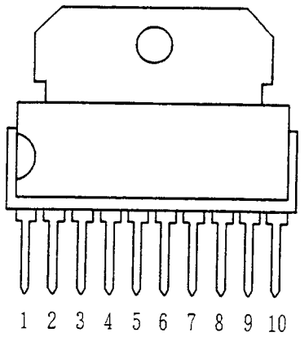


BA6209N
LA7910

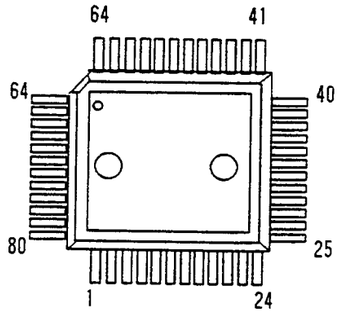


FEV0N14DN264
LA7320
HA118041
BA7740S
CXA1138S
HA118041NT

AN78N05



BA6209 BA6238A
BA6219B TA7288P



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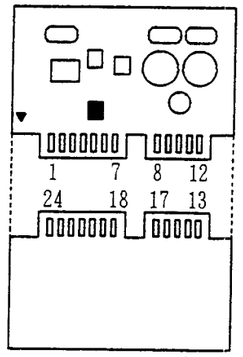
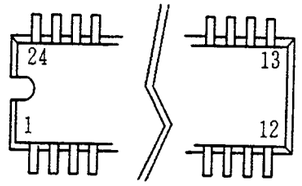
BA7703K1



HIC401 HIC400
(SERVO)



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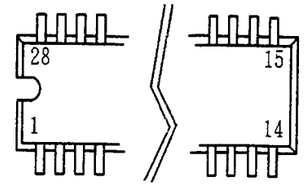

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FEVSE14DN362 SAA5236
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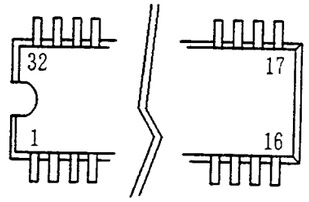

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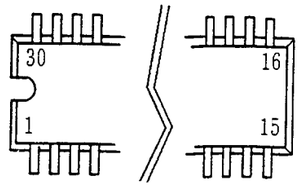
AN3932



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LA7096
14LN392
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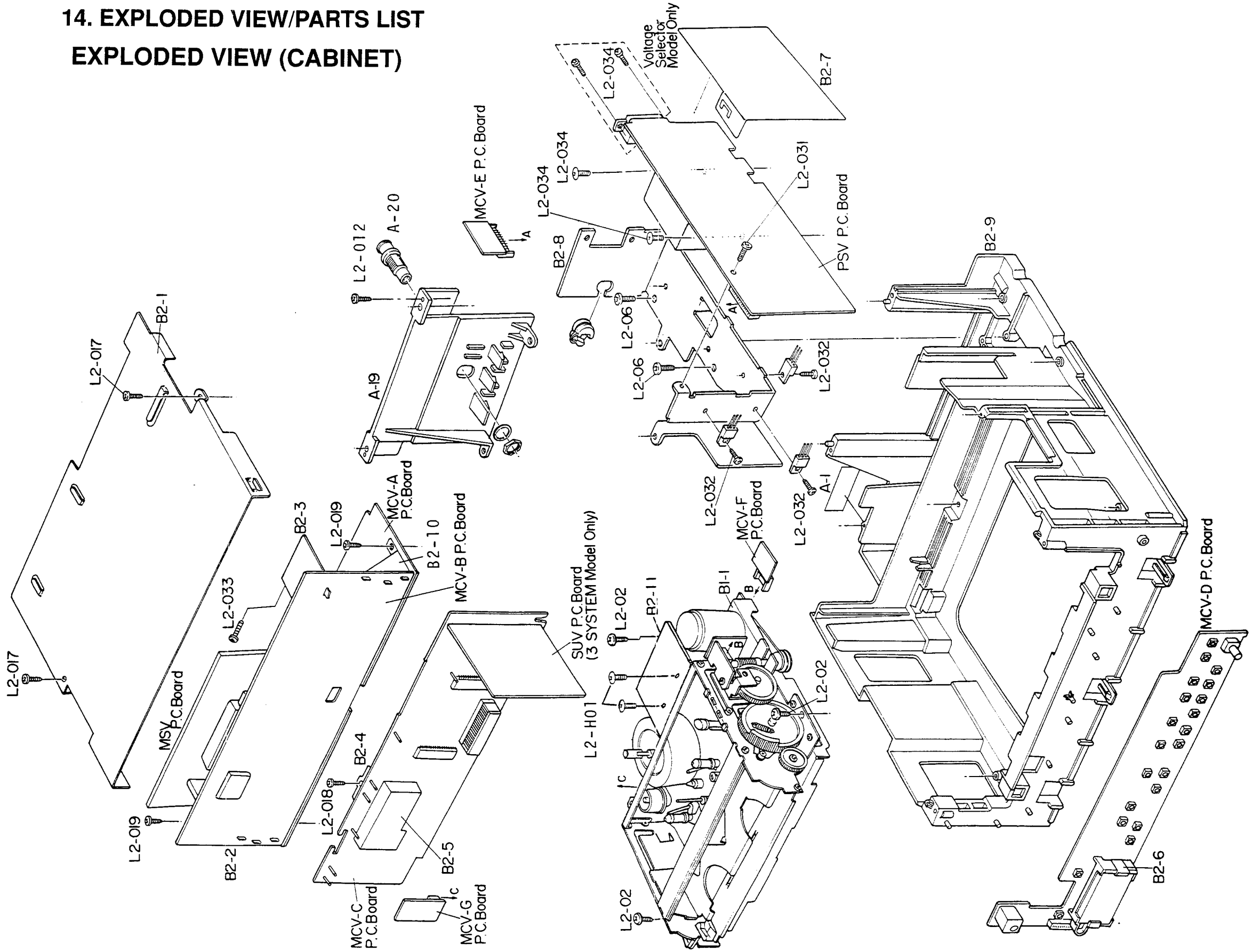
14. EXPLODED VIEW/PARTS LIST

EXPLODED VIEW (CABINET)

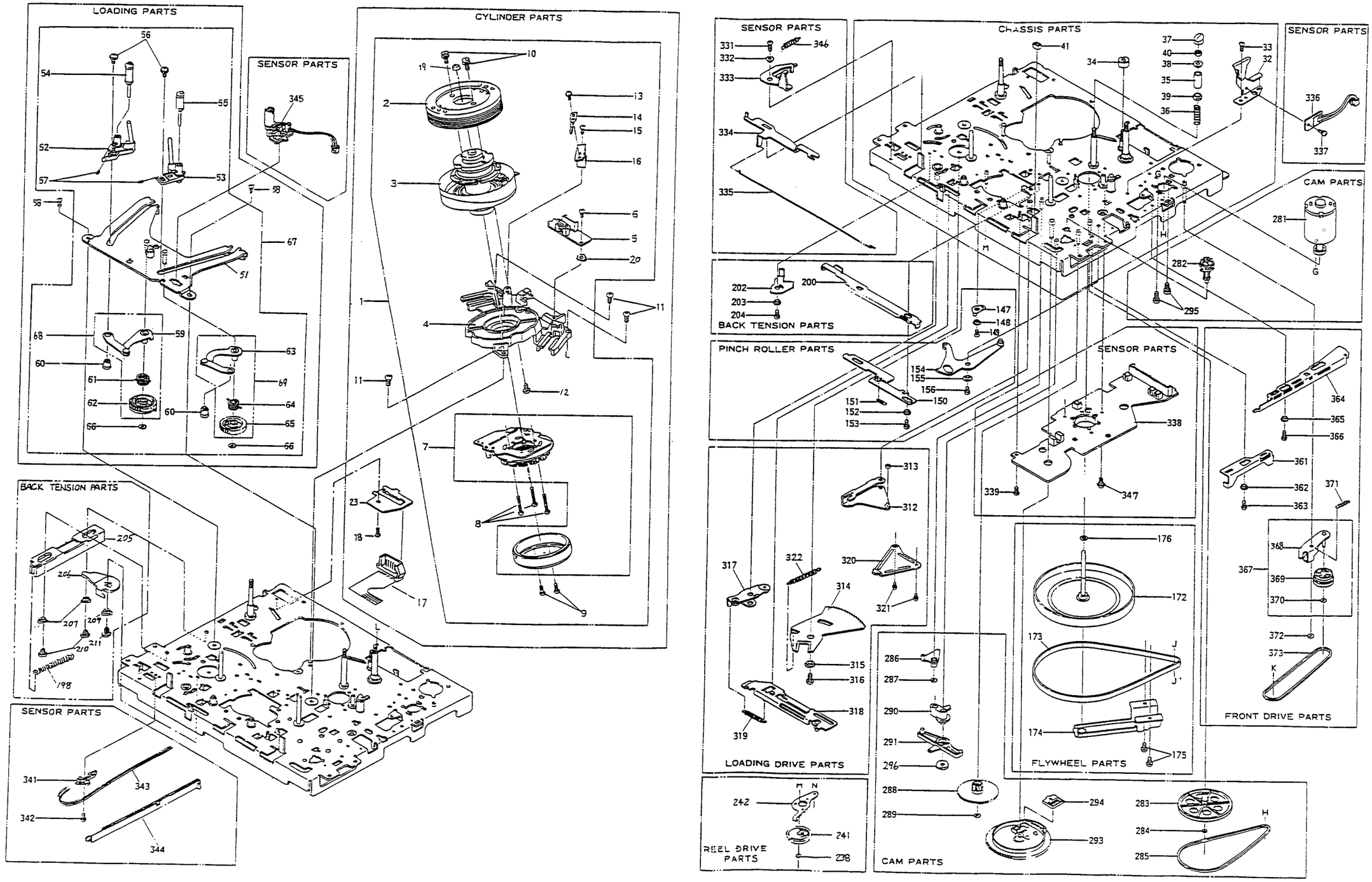


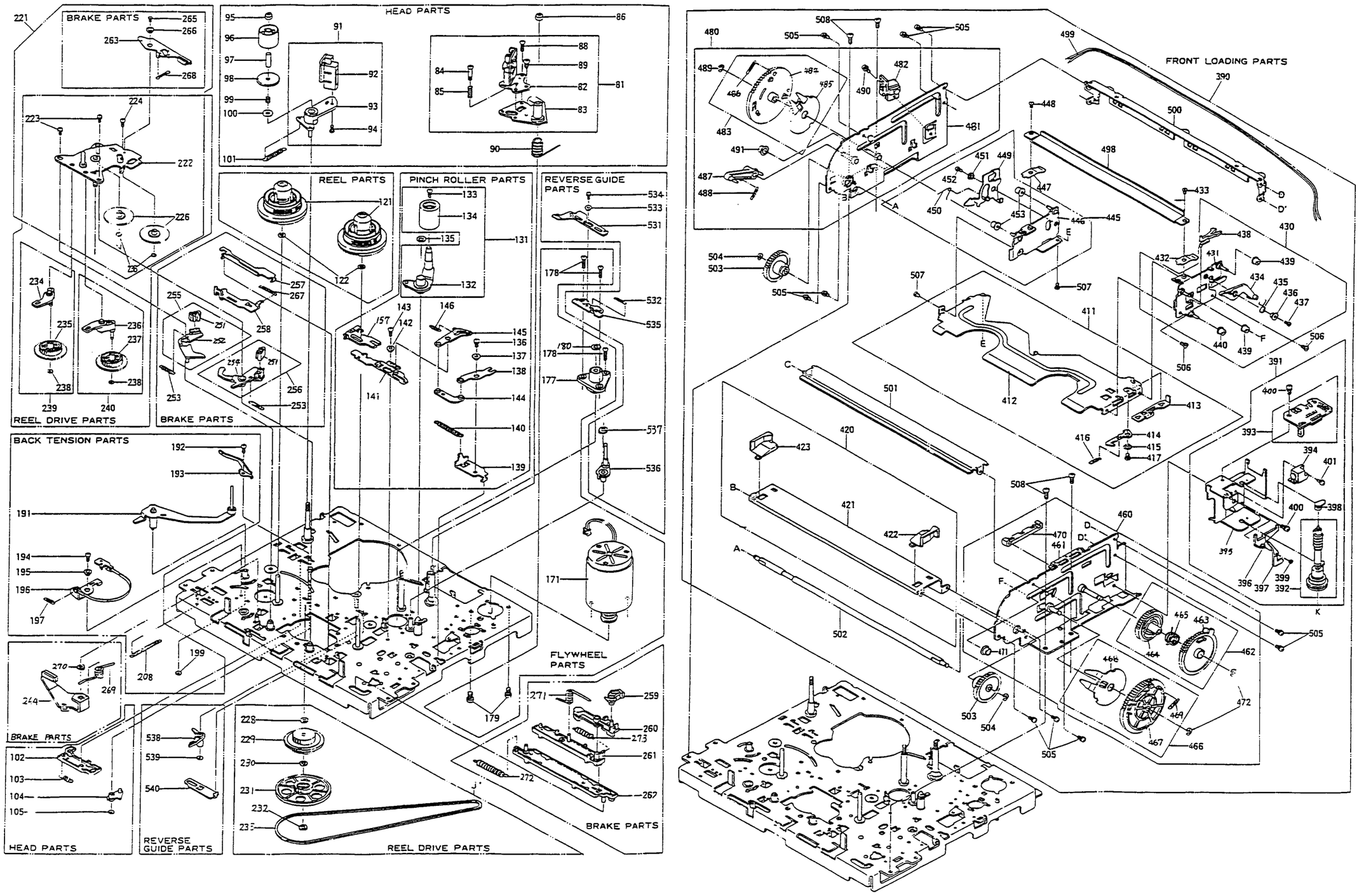
CA-8

MECHANICAL PARTS LIST (CABINET)

	Ref. No.	Parts No.	Description
			Front Ass'y (TV Section)
	A-1	SO-VM4-011-460	★Label, Chassis No.
	B1-1	SO-VDK-000-850	★Deck Ass'y (See Deck List)
	B2-1	SO-VM2-001-120	★Panel, Top
	B2-7	SO-VM1-000-360	★Chassis
	L2-02	SG-CMP-310-000	★Screw, P-tight, Brazier, Flange, M3×10
	L2-06	SG-BMP-410-000	★Screw, P-tight, Bind Head, M4×10
	L2-017	SG-BMP-310-000	★Screw, P-tight, Bind Head, M3×10
	L2-018	SG-BMP-310-000	★Screw, P-tight, Bind Head, M3×10
	L2-019	SG-BMP-310-000	★Screw, P-tight, Bind Head, M3×10

EXPLODED VIEW (DECK)




BRAKE PARTS
HEAD PARTS
REEL PARTS
PINCH ROLLER PARTS
REVERSE GUIDE PARTS
FRONT LOADING PARTS
REEL DRIVE PARTS
BRAKE PARTS
BACK TENSION PARTS
FLYWHEEL PARTS
HEAD PARTS
REVERSE GUIDE PARTS
REEL DRIVE PARTS
BRAKE PARTS

DECK PARTS LIST

Ref No.	Description	MFR' No.	Q'ty
1	Cylinder Assembly	S8-059-724-0A0	1
2	Drum, Upper	S8-059-022-900	1
3	Drum Assembly, Lower	S8-059-013-040	1
4	Mount, Cylinder	S8-059-010-100	1
5	P.C.B. Assembly, Video Out	S8-059-013-050	1
6	Screw, W Sems, M2.6 ×6	S8-973-000-000	1
7	Motor TM84	S8-004-090-200	1
8	Screw, C-tight, M2.6×20	S9-055-000-000	3
9	Screw, Sems, M2.6 ×6	S9-098-000-000	2
10	Screw, Bind Sems, M3×8	S9-972-000-000	2
11	Screw, C-tight, M3×10	S9-205-000-000	3
12	Screw, B-tight M2×6	S9-999-181-800	1
13	Screw, Cap, M2.6×3	S9-665-000-000	1
* 14	Flat Spring, Drum Ground	S8-059-015-400	1
15	Screw, C-tight, M2.6×5	S9-192-000-000	1
16	Bracket, Drum Ground	S8-059-010-200	1
17	P.C.B. Assembly, DM	S8-059-013-470	1
18	Screw, C-tight, M2.6×5	S9-192-000-000	1
* 19	Drum Ground	S8-059-012-300	1
20	Washer, Toothed Lock, M2.6	S9-715-000-000	1
23	Connector Bracket	S8-059-017-100	1
32	Open Angle	S8-059-023-010	1
33	Screw, C-tight, M2.6×4	S9-191-000-000	1
34	Adjuster, Tracking	S8-059-022-900	1
35	Guide, Tape	S8-000-031-400	1
36	Spring, Tape Guide	S8-059-022-600	1
37	Cap, Guide	S8-000-031-900	1
38	Flange (C), Tape Guide	S8-000-032-800	1
39	Flange (D), Tape Guide	S8-000-032-900	1
40	Nut M3.0	S9-453-000-000	1
41	Rubber, Damper	S8-059-022-300	1
51	Loading Base	S8-059-035-010	1
52	Block (L), Loading	S8-059-030-400	1
53	Block (R), Loading	S8-059-030-500	1
54	Roller Post ST	S8-000-033-700	1
55	Roller Post ST	S8-000-033-700	1
56	Screw, Cup, M2.6×3	S9-665-000-000	2
57	Screw, Set, M2.0×3 (Plane Type)	S9-550-000-000	2
58	Screw, C-tight, M2.6×5	S9-192-000-000	2
59	Plate (L), Loading	S8-059-035-020	1
60	Boss, Loading	S8-059-031-400	2
61	Spring (L), Loading Gear	S8-059-030-800	1
62	Gear (L), T Loading	S8-059-030-600	1
63	Plate (R), Loading	S8-059-035-030	1
64	Spring (R), Loading Gear	S8-059-030-900	1
65	Gear (R), T Loading	S8-059-030-700	1
66	Washer, Polyslider, φ2.6 ×φ6 ×t0.5	S9-884-000-000	2
67	Loading Base Assembly	S8-059-033-010	1
68	Loading Gear(L) Assembly	S8-059-033-020	1
69	Loading Gear(R) Assembly	S8-059-033-030	1
81	Head Base Assembly	S8-059-043-080	1
82	Head, ACE	S6-204-150-600	1

* Replace these parts in pairs.

Ref No.	Description	MFR' No.	Q'ty
83	Base, Head	S8-059-045-020	1
84	Screw, Azimuth Spring	S8-000-062-600	1
85	Spring, Azimuth	S8-000-060-400	1
86	Nut, Nylon M3	S9-953-000-000	1
88	Screw, M2.6 ×7	S9-705-000-000	1
89	Screw, Set, M3×6	S9-999-202-500	1
90	Spring, Head	S8-059-041-500	1
91	Plate Assembly, Full Erase	S8-059-043-020	1
92	Head, Full Erase	S6-204-150-300	1
93	Plate, Full Erase	S8-059-040-400	1
94	Screw, Flange Bind, M2×3	S9-114-000-000	1
95	Nut, Nylon M3	S9-953-000-000	1
96	Roller, Impedance	S8-059-040-500	1
97	Sleeve, Impedance Roller	S8-059-040-600	1
98	Flange (A), Tape Guide	S8-059-040-700	1
99	Spring, Tape Guide Flange	S8-059-040-900	1
100	Washer, Plane φ3 ×φ8 ×t0.5	S9-337-000-000	1
101	Spring, FE Plate	S8-059-040-800	1
102	Plate, FE Slide	S8-059-041-000	1
103	Spring, FE Actuate	S8-059-041-200	1
104	Lever, FE Actuate	S8-059-041-100	1
105	Washer, Polyslider, φ2.1 ×φ5 ×t0.5	S9-876-000-000	1
121	Reel Assembly	S8-059-053-010	2
122	Washer, φ3.1 ×φ6 ×t0.5	S9-912-000-000	2
131	Arm Assembly, Pinch Roller	S8-059-063-010	1
132	Arm Pinch Roller	S8-059-065-010	1
133	Screw, M2.6 ×4	S9-038-000-000	1
134	Roller (A), Pinch	S8-000-092-200	1
135	Washer, Polyslider, -φ5 ×φ8 ×t0.5	S9-999-031-100	1
136	Screw, Sems, M2.6 ×4	S9-096-000-000	1
137	Collar	S8-059-061-800	1
138	Angle, P Actuate	S8-059-060-500	1
139	Holder, P Angle	S8-059-061-900	1
140	Spring, P Roller	S8-059-062-000	1
141	Plate (A), P Slide	S8-059-062-400	1
142	Collar	S8-059-061-800	1
143	Screw, C-tight, M2.6×5	S9-192-000-000	1
144	Joint Plate	S8-059-060-600	1
145	Arm, P Actuate	S8-059-060-400	1
146	Spring, P Actuate Arm	S8-059-060-900	1
147	Crank, P	S8-059-061-200	1
148	Collar, P Crank	S8-059-061-300	1
149	Screw, C-tight FH (For Camera), M2.6×4	S9-999-181-000	1
150	Slider, P	S8-059-061-000	1
151	Spring, P Slider	S8-059-062-300	1
152	Collar, P Slider	S8-059-061-100	1
153	Screw, C-Tapping, M2.6×5	S9-192-000-000	1
154	Lever, P Cam	S8-059-065-020	1
155	Collar, P Cam Lever	S8-059-061-700	1
156	Screw, C-tight, M2.6×5	S9-192-000-000	1
157	Plate (B), P Slide	S8-059-062-500	1
171	Motor Assembly, Capstan	S8-059-073-020	1
172	Capstan, Flywheel	S8-059-071-400	1
173	Belt, Main	S8-059-071-000	1

Ref No.	Description	MFR' No.	Q'ty
174	Angle Assembly, Flywheel	S8-059-073-030	1
175	Screw, C-tight, M3×5	S9-202-000-000	2
176	Washer, φ3.1 ×φ6 ×t0.5	S9-912-000-000	1
177	Housing Assembly, Metal	S8-059-073-010	1
178	Screw, C-tight, M2.6×8	S9-195-000-000	3
179	Screw, Sems, M3 ×4	S9-105-000-000	2
180	Nylon Washer 2.92 ×5 ×0.5	S9-999-060-300	1
191	Arm, Back Tension	S8-059-085-010	1
192	Screw, C-tight, M2.6×4	S9-191-000-000	1
193	Support, Back Tension	S8-059-080-900	1
194	Screw, C-tight, M2.6×4	S9-191-000-000	1
195	Collar, Band Holder	S8-059-081-500	1
196	Band, BT	S8-059-083-020	1
197	Spring, Band Holder	S8-059-081-700	1
198	Spring, Back Tension	S8-059-081-300	1
199	Washer, Polyslider, φ2.1 ×φ4 ×t0.5	S9-999-031-500	1
200	Plate, BT Change	S8-059-081-000	1
202	Lever, BT Return	S8-059-082-300	1
203	Collar	S8-059-061-800	1
204	Screw, C-tight, M2.6×5	S9-192-000-000	1
205	Plate, BT Actuate	S8-059-081-900	1
206	Lever, BT Actuate	S8-059-081-800	1
207	Collar, BT Actuate Plate	S8-059-082-100	2
208	Spring, BT Actuate Plate	S8-059-082-000	1
209	Collar	S8-059-061-800	1
210	Screw, S-tight (For Camera) M2.6×3.5	S9-840-000-000	2
211	Screw, C-tight M2.6 ×5	S9-192-000-000	1
221	Plate Assembly	S8-059-093-120	1
222	Plate Semi Assembly	S8-059-095-030	1
223	Screw, Sems, M2 ×4	S9-077-000-000	2
224	Screw, C-tight, M2.6×4	S9-192-000-000	1
226	Gear, Reel Drive	S8-059-090-6A0	2
228	Washer, Nylon, φ3.1 ×φ6 ×t0.3	S9-853-000-000	1
229	Clutch Assembly	S8-059-093-110	1
230	Washer, Nylon, φ2.98×φ6 ×t0.3	S9-999-060-400	1
231	Pulley Assembly, Middle	S8-059-093-010	1
232	Washer, Polyslider, φ2.6 ×φ6 ×t0.5	S9-884-000-000	1
233	Belt, Drive	S8-059-091-700	1
234	Arm Assembly, P Gear	S8-059-093-030	1
235	Gear, Play	S8-059-092-0A0	1
236	Arm Assembly, RF Gear	S8-059-093-040	1
237	Gear, FF	S8-059-092-2A0	1
238	Washer, Polyslider, φ1.6 ×φ3.8 ×t 0.3	S9-743-000-000	3
239	Gear Assembly, P	S8-059-093-140	1
240	Gear Assembly, RF	S8-059-093-150	1
241	Return Gear Assembly	S8-059-093-130	1
242	Retrun Arm	S8-059-095-300	1
251	Shoe, Brake	S8-059-101-900	2
252	Arm, S Brake	S8-059-100-100	1
253	Spring, Brake Arm	S8-059-100-200	2
254	Arm, T Brake	S8-059-100-300	1
255	Arm Assembly, S Brake	S8-059-103-010	1
256	Arm Assembly, T Brake	S8-059-103-020	1
257	Lifter, Brake	S8-059-101-600	1

Ref No.	Description	MFR' No.	Q'ty
258	Actuator, L Brake	S8-059-101-700	1
259	Hook, Trigger	S8-059-101-400	1
260	Lever, Trigger	S8-059-101-300	1
261	Plate, Brake	S8-059-101-100	1
262	Brake Actuate, Base	S8-059-100-900	1
263	Brake, Take-up soft	S8-059-103-030	1
264	Brake, S Soft	S8-059-103-040	1
265	Screw, SL FH (For Camera), M2 ×3	S9-974-000-000	1
266	Collar, Take-up Soft Brake Arm	S8-059-100-700	1
267	Spring, L Brake Actuator	S8-059-101-800	1
268	Spring, Take-up Soft Brake Arm	S8-059-100-600	1
269	Spring, S Soft Brake	S8-059-102-200	1
270	Washer, Polyslider, φ2.1 ×φ5 ×t0.5	S8-876-000-000	1
271	Spring, Trigger Lever	S8-059-102-300	1
272	Brake Actuate Base Spring	S8-059-101-000	1
273	Brake Plate Spring	S8-059-101-200	1
281	LM Assembly	S8-059-113-010	1
282	Bearing Assembly, Trigger	S8-059-113-020	1
283	Pulley, Loading	S8-059-110-300	1
284	Washer, Polyslider, φ1.6 ×φ3.8 ×t0.3	S8-743-000-000	1
285	Belt, Loading	S8-059-110-600	1
286	Arm (B), Search	S8-059-111-200	1
287	Washer, Polyslider, φ2.6 ×φ6 ×t0.5	S9-884-000-000	1
288	Gear, Loading	S8-059-110-400	1
289	Washer, Polyslider, φ2.1 ×φ5 ×t0.5	S9-876-000-000	1
290	Arm, Brake Actuate	S8-059-111-300	1
291	Arm, Eject Actuate	S8-059-111-400	1
293	Cam, Loading	S8-059-110-100	1
294	Brush, S	S8-059-110-200	1
295	Screw, C-tight, M3×4	S9-105-000-000	2
296	Washer, Polyslider, φ 2.6×φ8 ×t 0.5	S9-999-031-000	1
312	Lever Semi Assembly, Loading	S8-059-125-010	1
313	Roller, Cam	S8-059-121-300	1
314	Plate, Loading Gear	S8-059-120-900	1
315	Collar, Loading Gear Plate	S8-059-121-000	1
316	Screw, C-tight, M3×6	S9-203-000-000	1
317	Lever Semi Assembly, Loading Actuate	S8-059-125-020	1
318	Plate, Semi Assembly, Loading Actuate	S8-059-125-030	1
319	Spring, Loading Actuate	S8-059-120-500	1
320	Plate, Loading Lever Reinforce	S8-059-121-100	1
321	Screw, Sems, M2 ×5	S9-078-000-000	2
322	Spring, L Gear Plate	S8-059-121-200	1
331	Screw, C-tight, M2.6×5	S9-192-000-000	1
332	Collar	S8-059-061-800	1
333	Lever, REC	S8-059-130-600	1
334	Actuator, REC	S8-059-130-700	1
335	Spoke, REC Actuate	S8-059-131-100	1
336	Sensor, DEW	S6-808-080-400	1
337	Screw, Sems, M2.6 ×4	S9-096-000-000	1
338	Plate, Base	S8-059-133-070	1
339	Screw, S-tight (For Camera), M2.6×5	S9-691-000-000	1
341	Switch, Leaf	S6-401-011-510	1
342	Screw, C-Tight, M2.6×5	S9-192-000-000	1
343	Wire	S8-059-130-800	2

Ref No.	Description	MFR' No.	Q'ty
344	Holder, Wire	S8-059-131-000	1
345	Lamp Holder Assembly	S8-059-133-060	1
346	Spring, Rec Lever	S8-059-131-400	1
347	Coller, Screw	S8-059-131-700	1
361	Actuator, Eject	S8-059-150-800	1
362	Collar	S8-059-061-800	1
363	Screw, C-tight, M2.6×5	S9-192-000-000	1
364	Plate, L Brake	S8-059-150-700	1
365	Collar	S8-059-061-800	1
366	Screw, C-tight, M2.6×5	S9-192-000-000	1
367	Arm Assembly, E Idler	S8-059-153-030	1
368	Arm Semi Assembly, E Idler	S8-059-155-020	1
369	Pulley, Eject	S8-059-151-500	1
370	Washer, Polyslider, φ1.6 ×φ3.8 ×t0.3	S9-743-000-000	1
371	Spring, Idler Arm	S8-059-151-100	1
372	Washer, Polyslider, φ2.1 ×φ6 ×t0.5	S9-876-000-000	1
373	Belt, Front Loading	S8-059-150-600	1
390	Loading Assembly, Front	S8-059-163-370	1
391	Bracket Assembly, Cassette Load	S8-059-163-180	1
392	Clutch Assembly, Front Loading	S8-059-163-190	1
393	P.C.B. Assembly, Front Loading	S8-059-163-200	1
394	Sensor, P.C.B. (RM)	S8-059-163-160	1
395	Bracket Semi Assembly, Cassette Load	S8-059-165-060	1
396	Lever, IN SW	S8-059-163-400	1
397	Lever, S SW	S8-059-163-300	1
398	Bearing (A), F Worm	S8-059-160-600	1
399	Washer, Polyslider, φ1.6 ×φ3.8 ×t0.3	S9-743-000-000	1
400	Screw, Sems, M2.6 ×4	S9-096-000-000	2
401	Screw, Sems, M2 ×5	S9-078-000-000	1
411	Holder Assembly, Cassette	S8-059-163-060	1
412	Holder, Cassette	S8-000-220-300	1
413	Plate, Slide	S8-000-221-300	1
414	Plate (A), C Lock	S8-000-221-200	1
415	Collar	S8-059-061-800	1
416	Spring, Lock	S8-059-162-900	1
417	Screw, SL (For Camera), M2.6 ×3	S9-968-000-000	1
420	Angle Assembly, Front	S8-059-163-070	1
421	Angle, Front	S8-059-161-800	1
422	Guide (R), Tape	S8-059-162-500	1
423	Guide (L), Tape	S8-059-162-400	1
430	Plate (R) Assembly, Side	S8-059-163-080	1
431	Plate (R), Side	S8-059-165-020	1
432	Plate, Cassette Push	S8-059-162-800	1
433	Screw (For Camera), M2.3×2	S9-833-000-000	1
434	Lever, Open	S8-000-222-500	1
435	Spring, Open Lever	S8-000-224-400	1
436	Lever Collar, Open	S8-000-224-200	1
437	Screw, SL (For Camera), M2×4	S9-967-000-000	1
438	Lever, Lock Release	S8-000-221-600	1
439	Roller, Guide	S8-000-227-500	2
440	Roller, Guide	S8-000-222-300	1
445	Plate (L) Assembly, Side	S8-059-163-090	1
446	Plate (L), Side	S8-059-165-030	1
447	Plate, Cassette Push	S8-059-162-800	1

Ref No.	Description	MFR' No.	Q'ty
448	Screw (For Camera), M2.3×2	S9-833-000-000	1
449	Plate (L), C Lock	S8-000-226-600	1
450	Spring (L), Lock Plate	S8-059-163-000	1
451	Collar, Lock Plate	S8-000-196-300	1
452	Screw (For Camera), M2×2.5	S9-966-000-000	1
453	Roller, Guide	S8-000-227-500	2
460	Frame (R) Assembly	S8-059-163-390	1
461	Frame (R)	S8-059-165-070	1
462	Wheel Assembly, Worm	S8-059-163-210	1
463	Wheel, Worm	S8-059-163-600	1
464	Gear, Friction	S8-059-164-500	1
465	Spring, Friction	S8-059-163-100	1
466	Gear (R) Assembly, Lift	S8-059-163-120	1
467	Gear (R), Lift	S8-000-221-500	1
468	Arm, Lift	S8-000-221-100	1
469	Spring, LP	S8-000-224-500	1
470	Guide, Open Lever	S8-000-222-600	1
471	Sleeve, Guide	S8-000-222-400	1
472	E Ring S 2.5	S9-504-000-000	2
480	Frame (L) Assembly	S8-059-163-380	1
481	Frame (L)	S8-059-165-080	1
482	Sensor, P.C.B. (LM)	S8-059-163-010	1
483	Gear (L) Assembly, Lift	S8-059-163-140	1
484	Gear, Lift	S8-000-221-400	1
485	Arm, Lift	S8-000-221-100	1
486	Spring, LP	S8-000-224-500	1
487	Lever, Lift	S8-059-166-700	1
488	Spring, Lift Lever	S8-059-166-800	1
489	E Ring S 2.5	S9-504-000-000	1
490	Screw, Sems, M2.6 ×7	S9-099-000-000	1
491	Sleeve, Guide	S8-000-222-400	1
498	Stay, Top	S8-000-226-500	1
499	Wire, End Sensor	S8-059-161-900	1
500	Angle, Rear	S8-059-160-900	1
501	Plate, Upper	S8-059-166-600	1
502	Shaft, Synchronize	S8-059-166-000	1
503	Gear (A), Synchronize	S8-059-161-700	2
504	E Ring S 2.5	S9-504-000-000	2
505	Screw, Sems, M2.6 ×4	S9-096-000-000	10
506	Screw (For Camera), M2.6×3	S9-556-000-000	2
507	Screw (For Camera), M2.3×2.5	S9-991-000-000	2
508	Screw, C-Tight, M2.6×5	S9-192-000-000	4
531	Plate, RG Slide	S8-059-170-300	1
532	Spring, RG Slide	S8-059-171-100	1
533	Collar, RG Slide Plate	S8-059-171-000	1
534	Screw, Sems, M2 ×4	S9-077-000-000	1
535	Base, RG Slide	S8-059-170-900	1
536	Arm Semi Assembly, RG	S8-059-175-020	1
537	Washer, Polyslider, φ2.6 ×φ6 ×t0.5	S9-884-000-000	1
538	Arm, RG Actuate	S8-059-170-100	1
539	Washer, Polyslider, φ2.1 ×φ5 ×t0.5	S9-876-000-000	1
540	RG Actuator	S8-059-170-200	1

ELECTRICAL PARTS LIST

	Ref. No.	Parts No.	Description
⚠	**P. C. Board Ass' y, MCV-A**		
	D701, D702, D703	SM-TZ5-6B0-000 or SU-Z56-BSB-000	Diode, Zener, MTZ5.6B-T77 or UZ5.6BSB
	JK702	S1-780-076-000	Jack, RCA (W/SW)
	JK701	S1-780-27-000	Jack, BNC
	IC702	SL-563-100-000	IC, L5631
	IC703	S1-4LQ-115-000	IC, Sync. Detector, LA7210
	IC701	SA-N78-M09-F00 or S1-4L0-241-000	IC, Voltage Regulator, AN78M09F or NJM78M09FA
	Q701, Q702, Q703	SA-933-Q00-000 or SA-933-R00-000 or SA-608-E00-000 or SA-608-F00-000	Transistor, 2SA933Q or 2SA933R or 2SA608SPE or 2SA608SPF
	Q704	SC-174-0Q0-000 or SC-174-0R0-000 or SC-536-SE0-000 or SC-536-SF0-000	Transistor, 2SC1740Q or 2SC1740R or 2SC536SPE or 2SC536SPF
	QR702	SC-124-ES0-000 or SC-340-000-000	Digital Transistor, DTC124ES or 2SC3400
	QR701, QR703	SA-124-ES0-000 or SA-134-600-000	Digital Transistor, DTA124ES or 2SA1346
		SW-PZ0-101-TM0-020	RCA Plug Cord
		S1-780-111-000 or S1-780-217-000	ANT Jack
	X701	S1-810-414-000	X'tal 500kHz
⚠	TU701	S1-813-519-000	Tuner Unit
	A-19	S0-VM2-001-110	Jack Board
	P. C. Board Ass' y, MCV-B		
	L501	S2-165-229-000	★Coil, Microinductor 2.2 μH
	D501, D502, D505, D506	S1-SS2-540-000 or SG-MB0-1B0-000 or SU-S10-40M-000	Diode, Switching, 1SS254 or GMB01B or US1040M

	Ref. No.	Parts No.	Description
	IC505	SG-HD7-4HC-595-**0	IC, HD74HC595
	IC401	S1-4LF-232-000	IC, Motor Driver, BA6219B
	IC508	S1-4DN-160-000	IC, Reset, MN1280R
	IC501	S1-4D0-800-000	IC, System Control,
	IC504	S1-4LF-492-000	IC, Motor Driver, BA6209N
	IC503	S1-4LF-550-000	IC, BR93C46
	IC506	SA-M78-L05-000 or SJ-78L-05A-000	IC, Voltage Regulator, AN78L05 or NJM78L05A
	IC509	SA-N78-05F-000 or SJ-780-5FA-000 or SP-C78-05H-F00	IC, Voltage Regulator, AN7805F or NJM7805FA or μPC7805HF
	IC502	SB-A10-339-000 or SN-JM2-901-N00 or SL-A63-390-000	IC, Comparator, BA10339 or NJM2901N or LA6339
	RX504, RX505	S1-4LF-232-000	Res. Network, 47k ohm ×5
	R558	S1-330-395-000 or S1-330-320-000	Res. Oxide Metal Film 3.3 ohm 1W ± 5%
	Q502	SB-101-0Q0-000 or SB-101-0R0-000 or SB-892-S00-000 or SB-892-T00-000	Transistor, 2SB1010Q or 2SB1010R or 2SB892S or 2SB892T
	Q501	SC-174-0Q0-000 or SC-174-0R0-000 or SC-536-SE0-000 or SC-536-SF0-000	Transistor, 2SC1740Q or 2SC1740R or 2SC536SPE or 2SC536SPF
	Q503	SD-138-4Q0-000 or SD-138-4R0-000 or SD-120-7S0-000 or SD-120-7T0-000	Transistor, 2SD1384Q or 2SD1384R or 2SD1207S or 2SD1207T
	X501	S1-812-885-000	X'tal 4.19MHz
	P. C. Board Ass'y, MCV-C		
	L4	S2-165-150-000	★Coil, Microinductor, 15μH
	L5	S2-165-180-000	★Coil, Microinductor, 18μH
	L2	S2-165-270-000	★Coil, Microinductor, 27μH
	L1	S2-165-330-000	★Coil, Microinductor, 33μH
	L3	S2-165-560-000	★Coil, Microinductor, 56μH
	L7	S2-165-820-000	★Coil, Microinductor, 82μH
	L8, L11	S2-165-101-000	★Coil, Microinductor, 100μH
	L10	S2-165-151-000	★Coil, Microinductor, 150μH
	L6	S2-165-181-000	★Coil, Microinductor, 180μH
	L201	S1-17M-500-000	★Coil, Microinductor, 18 mH

	Ref. No.	Parts No.	Description
	D402, D451	S1-SS2-540-000 or SU-S10-40M-000 or SG-MB0-1B0-000	Diode, Switching, 1SS254 or US1040M or GMB01B
	IC402	S1-4DN-363-000	IC, Servo, MN6748FVAP-1
	IC201	S1-4LF-301-000	IC, BA7767AS
	IC1	S1-4LH-527-000	IC, Head Amp, HA118041NT
⚠	HIC402	S1-812-240-000 or S1-813-017-000	Hybrid IC, Serbo
	VR2	S1-38A-953-000	Res. Semi-fixed 1k ohm B
	VR1	S1-38A-955-000	Res. Semi-fixed 2.2k ohm B
	VR201	S1-38A-965-000	Res. Semi-fixed 100k ohm B
	VR401	S1-380-877-000	Res. Semi-fixed 200k ohm B
	VR402	S1-38A-967-000	Res. Semi-fixed 220k ohm B
	Q1, Q4, Q405	SC-174-0Q0-000 or SC-174-0R0-000 or SC-536-SE0-000 or SC-536-SF0-000	Transistor, 2SC1740Q or 2SC1740R or 2SC536SPE or 2SC536SPF
	Q2	SA-131-7T0-000 or SA-131-7S0-000	Transistor, 2SA1317T or 2SA1317S
	Q201	SC-206-0Q0-000 or SD-400-F00-000	Transistor, 2SC2060Q or 2SD400F
	QR1, QR2, QR201, QR401	SC-124-ES0-000 or SC-340-000-000	Digital Transistor, DTC124ES or 2SC3400
	B2-4	S0-VM4-005-380	Shield, Bottom
	B2-5	S6-S50-372-000	Shield, Top
	T201	S1-130-686-000 or S1-13M-686-000 or S1-13D-686-000	★Coil, OSC
	P. C. Board Ass' y, MCV-D		
	L801	S2-165-470-000	★Coil, Microinductor 47μH
	D801, D802, D803, D804, D805	S1-SS2-540-000 or SU-S10-40M-000 or SG-MB0-1B0-000	Diode, Switching, 1SS254 or US1040M or GMB01B

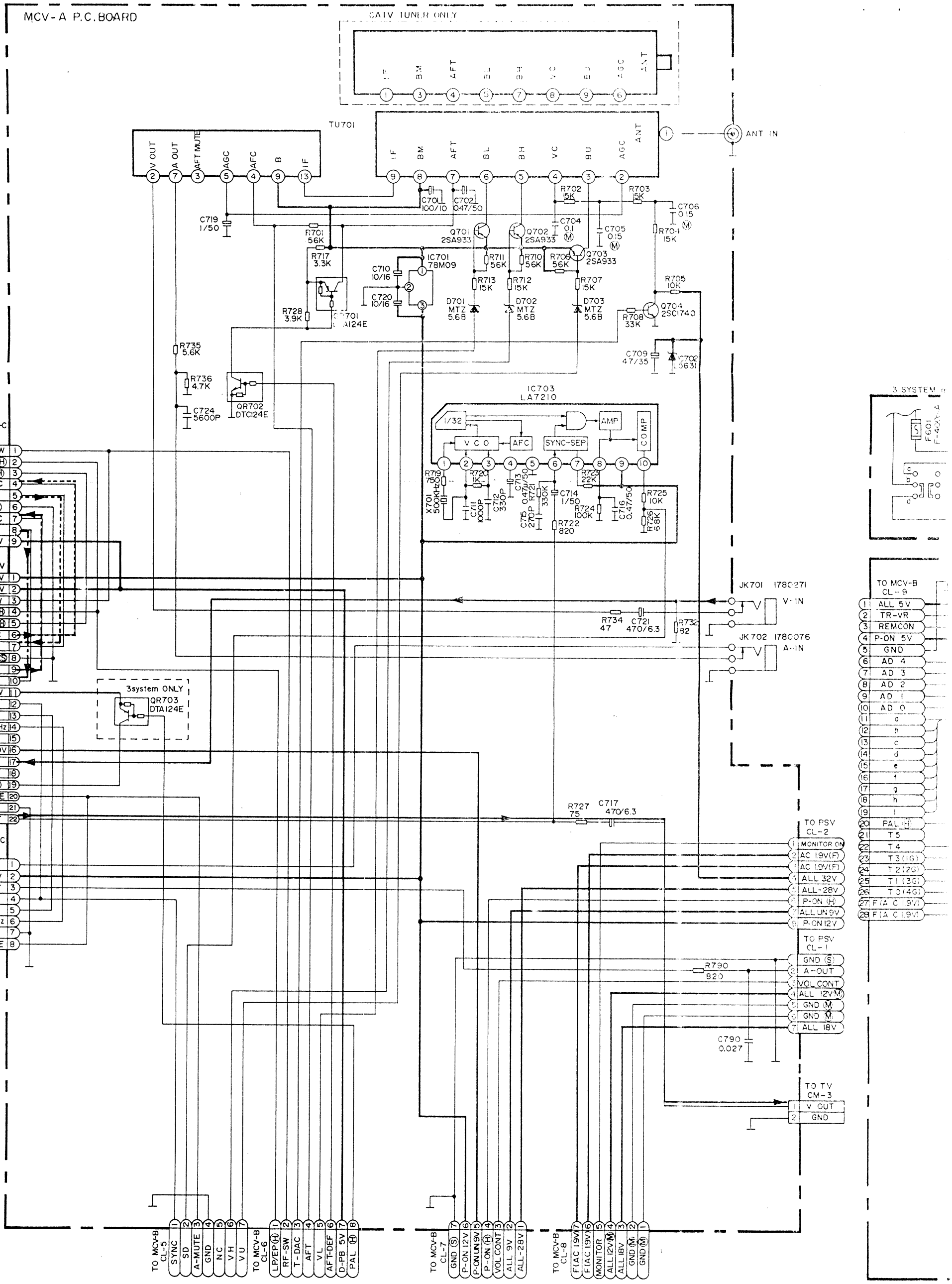
Ref. No.	Parts No.	Description
SW801, SW802, SW803, SW804, SW806, SW807, SW808, SW809, SW811, SW812, SW813, SW814, SW815, SW816, SW817, SW818, SW819, SW821, SW822, SW823, SW824	S5-622-158-000 or S5-622-160-000 or S5-622-161-000	Switch, Push
VR801	S5-39A-660-000 or S5-39N-661-000	Potentiometer, 250k ohm (B)
RS801	S1-812-501-000	Remote Sensor Unit
FL801	S1-813-152-000	FIP
B2-6	S6-N50-285-000	Holder, FIP
P. C. Board Ass' y, MSV		
L102	S2-165-399-000	★Coil, Microinductor 3.9 μH
L107	S2-165-150-000	★Coil, Microinductor 15 μH
L101	S2-165-180-000	★Coil, Microinductor 18 μH
L57	S2-165-470-000	★Coil, Microinductor 47 μH
L51, L52	S2-165-680-000	★Coil, Microinductor 68 μH
L53	S2-165-101-000	★Coil, Microinductor 100 μH
L105	S2-165-271-000	★Coil, Microinductor 270 μH
L103, L106, L182	S2-165-331-000	★Coil, Microinductor 330 μH
L181	S1-13M-747-000 or S1-13D-747-000	★Coil, Microinductor 2 mH
D51, D102, D151	SU-S10-40M-000 or S1-SS2-540-000 or SG-MB0-1B0-000	Diode, Switching US1040M or 1SS254 or GMB01B
T101	S1-813-477-000	Filter, LC
DL101	S1-813-522-000 or S1-813-193-000	Filter, Comb 4.43MHz
T51	S1-810-805-000 or S1-810-994-000	Filter, L.P.F 3MHz
DL151	S1-813-025-000	Filter, Comb
CF181	S1-810-359-000 or S1-813-358-000	Filter, Ceramic 4.5MHz
IC53	SA-N78-M05-F00 or S7-8M0-5HF-000 or S1-4L0-238-000	IC, Voltage Regulator, AN78M05F or NJM78M05FA or NJM78M05FA
IC101	S1-4LQ-488-000	IC, LA7331N
IC52	S1-4LQ-489-000	IC, LC8992
IC51	SG-LA7-323-000	IC, LA7323

	Ref. No.	Parts No.	Description
	IC181	SG-AN6-368-***-**0	IC, AN6368
	VR54	S1-38J-776-000 or S1-38N-776-000 or S1-380-712-000	Res. Semi-fixed 500 ohm B
	VR53	S1-38J-778-000 or S1-38N-778-000	Res. Semi-fixed 2k ohm B
	VR51, VR52, VR55	S1-38J-780-000 or S1-38N-780-000	Res. Semi-fixed 5k ohm B
	Q52, Q53, Q55, Q56, Q101, Q103, Q104	SC-174-0Q0-000 or SC-174-0R0-000 or SC-536-SE0-000 or SC-536-SF0-000	Transistor, 2SC1740Q or 2SC1740R or 2SC536SPE or 2SC536SPF
	Q51, Q54	SA-933-Q00-000 or SA-933-R00-000 or SA-608-SF0-000 or SA-608-SE0-000	Transistor, 2SA933Q or 2SA933R or 2SA608SPF or 2SA608SPE
	Q102, Q107, Q151	SC-283-9E0-000 or SC-283-9F0-000 or SC-205-8Q0-000 or SC-205-8R0-000	Transistor, 2SC2839E or 2SC2839F or 2SC2058Q or 2SC2058R
	QR53, QR54, QR151, QR57, QR181, QR182 QR183	SC-124-E00-000 or SC-340-000-000	Digital Transistor, DTC124ES or 2SC3400
	X101	S1-811-366-000 or S1-811-388-000	★X'tal 4.433619MHz
⚠	**P. C. Board Ass'y, SVV**		
	L452	S2-165-101-000	★Coil, Microinductor 100μH
	IC454	S1-4DN-362-000	IC, Servo, MN6748FVAN
	IC451, IC542, IC453	SG-N74-HC4-053-AS0 SG-C74-HC4-053-AF0	IC, Analogue Switch, MN74HC4053S or TC74HC4053BF
	VR451	S1-38A-965-000	Res. Semi-fixed 100k ohm B
	VR452	S1-380-877-000	Res. Semi-fixed (Metal) 200k ohm B

	Ref. No.	Parts No.	Description
	Q450	SC-205-8Q0-000 or SC-205-8R0-000 or SC-283-9E0-000 or SC-283-9F0-000	Transistor, 2SC2058Q or 2SC2058R or 2SC2839E or 2SC2839F
	X450	S1-811-343-000	★X'tal 3.579545MHz
⚠	**P. C. Board Ass'y, PSV**		
⚠	D607, D608, D609, D610, D611, D612, D613, D614	SA-1SR-352-00A-HP0or S1-N40-03F-200	Diode, 1SR35-200A for 1N4003
	D601	S1-N40-020-000	Diode, 1N4002
	D606	SM-TZ4-7B0-000 or SU-Z47-BSC-000	Diode, Zener, MTZ4.7B or UZ4.7BSC
	D605	SM-TZ3-0A0-000 or SM-TZ3-0B0-000 or SU-Z30-BSC-000	Diode, Zener, MTZ30A or MTZ30B or UZ30BSC
	D603, D604	S1-N40-030-000	Diode, 1N4003
⚠	IC603	SA-N78-18F-000 or S1-4L0-253-000 or SP-C78-18H-F00	IC, Voltage Regulator, 18V AN7818F or NJM7818FA or μPC7818HF
⚠	IC601, IC602	SA-N78-12F-000 or S1-4L0-251-000 or SP-C78-12H-F00	IC, Voltage Regulator, 12V AN7812F or NJM7812FA or μPC7812HF
	IC951	S1-4LN-160-000	IC, AN5265
	R962, R954	S1-330-317-000 or S1-330-391-000	Res. Oxide Metal Fiom 1.5 ohm 1W ± 5%
	R602	S5-34A-102-000	Res. Oxide Metal Fiom 1k ohm 1W ± 5%
	Q603	SB-101-0Q0-000 or SB-101-0R0-000 or SB-892-S00-000 or SB-892-T00-000	Transistor, 2SB1010Q or 2SB1010R or 2SB892S or 2SB892T
	Q601, Q604, Q951, Q952	SC-174-0Q0-000 or SC-174-0R0-000 or SC-536-SE0-000 or SC-536-SF0-000	Transistor, 2SC1740Q or 2SC1740R or 2SC536SPE or 2SC536SPF
	QR601	SC-124-ES0-000 or SC-340-000-000	Digital Transistor, DTC124ES or 2SC3400

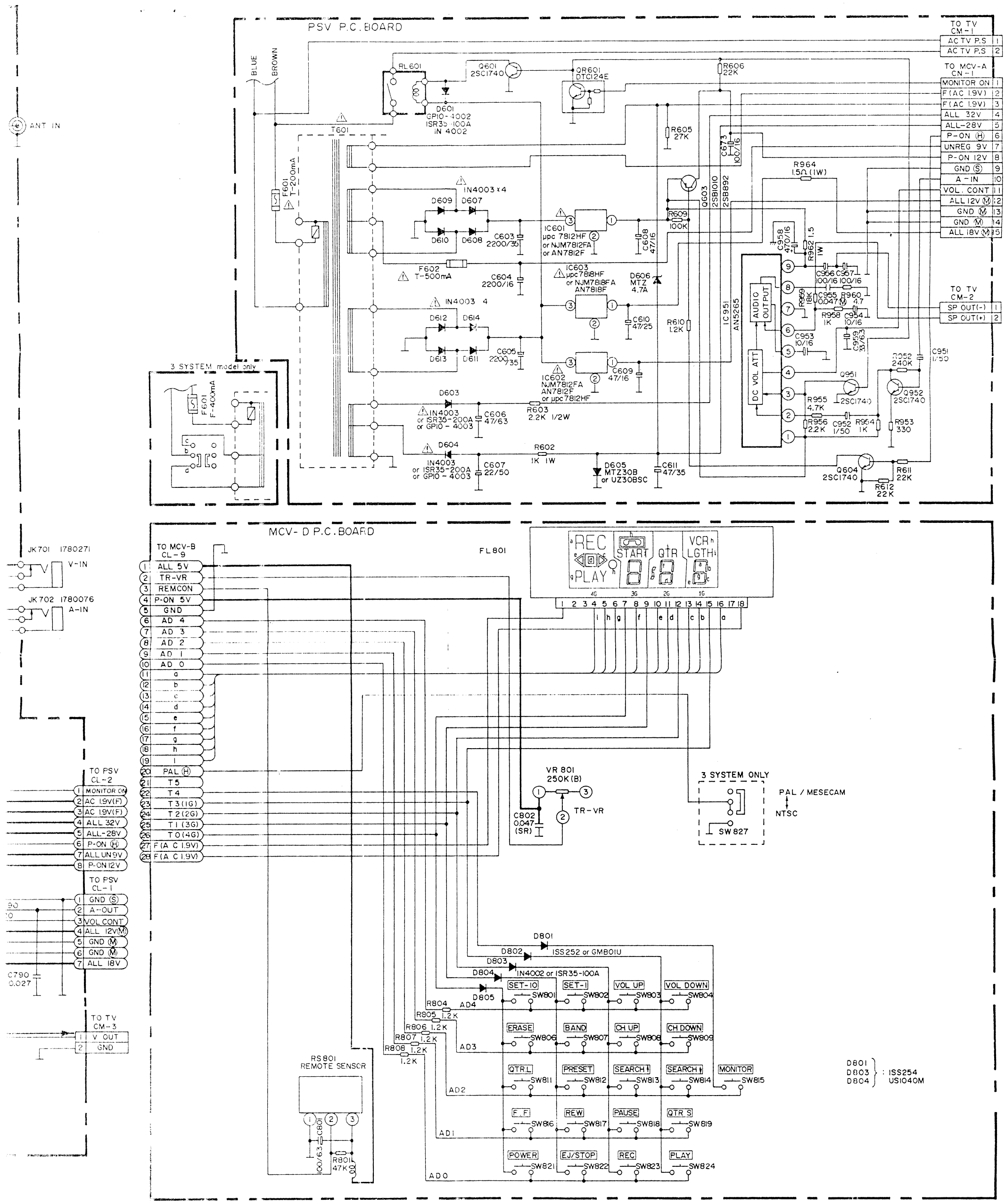
	Ref. No.	Parts No.	Description
⚠		S1-150-965-000	Trans, Power
⚠	RL601	S1-680-169-000	Relay
	CN-1	S1-770-610-000	Connector, Side 15P
		S1-790-356-000	Wire Tie
		S1-790-417-000	Cord Stopper
		S1-790-424-000	Holder, Fuse
		S5-750-192-000	AC Coard
		S6-E50-052-000	Label, Fuse
⚠	F601	S1-790-477-000	Fuse T400mA/250V
⚠	F602	S1-790-478-000	Fuse T500mA/250V
	B2-7	S0-VM4-005-440	★Sheet, Insulate
	B2-8	S0-VM2-003-800	★Holder, Trans
	SW601	S1-621-853-000	Switch, Voltage Selector
	L2-031	SD-BM1-310-000	★Screw, Tapping, Bind Head, M3×10
	L2-032	SD-BM1-310-000	★Screw, Tapping, Bind Head, M3×10
	L2-034	SG-ZMC-408-000 or SG-TMC-408-000	★Screw, CE-tight, Tras Head, M4×8 or C-tight, Tras Head, M4×8

TUNER/POWER SUPPLY/CONTROL



WARNING:
REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHOWING ON THIS SCHEMATIC DIAGRAM. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS. DON'T DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING. SERVICE PERSONNEL SHOULD MAKE LEAKAGE-CURRENT OR RESISTANCE MESUREMENTS TO DETERMINE THAT EXPOSES PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

NOTES:
1. ALL RESISTANCE VALUES ARE INDICATED IN OHM (K=10^3, m=10^6).
2. ALL CAPACITANCE VALUES ARE INDICATED IN μF (P=10^{-6} μF).
3. VOLTAGES ARE MEASURED WITH SSVM (Z: > 10K OHM) FRONT POINT IN AT NO SIGNAL CONDITION UNLESS OTHERWISE NOTED. (SEE VOLTAGE
4. CAPACITOR TYPES ARE (PL) = POLYPROPYLANE, (SC) = SEMI-CONDUC CERAMIC.



Ω INDICATED IN OHM (K=10³, m=10⁻³).
ARE INDICATED IN μF (P=10⁻⁶ μF).
WITH SSVM (Z: > 10K OHM) FRONT POINT INDICATED TO CHASSIS GROUND
NLESS OTHERWISE NOTED. (SEE VOLTAGE CHART.)
= POLYPROPYLANE, (SC) = SEMI-CONDUCTIVE, (M) = MYLAR, OTHERS ARE

Rec. Mode

——— Luminance + Chrominance

—·—·— Luminance

····· Chrominance

Play Mode

——— Luminance + Chrominance

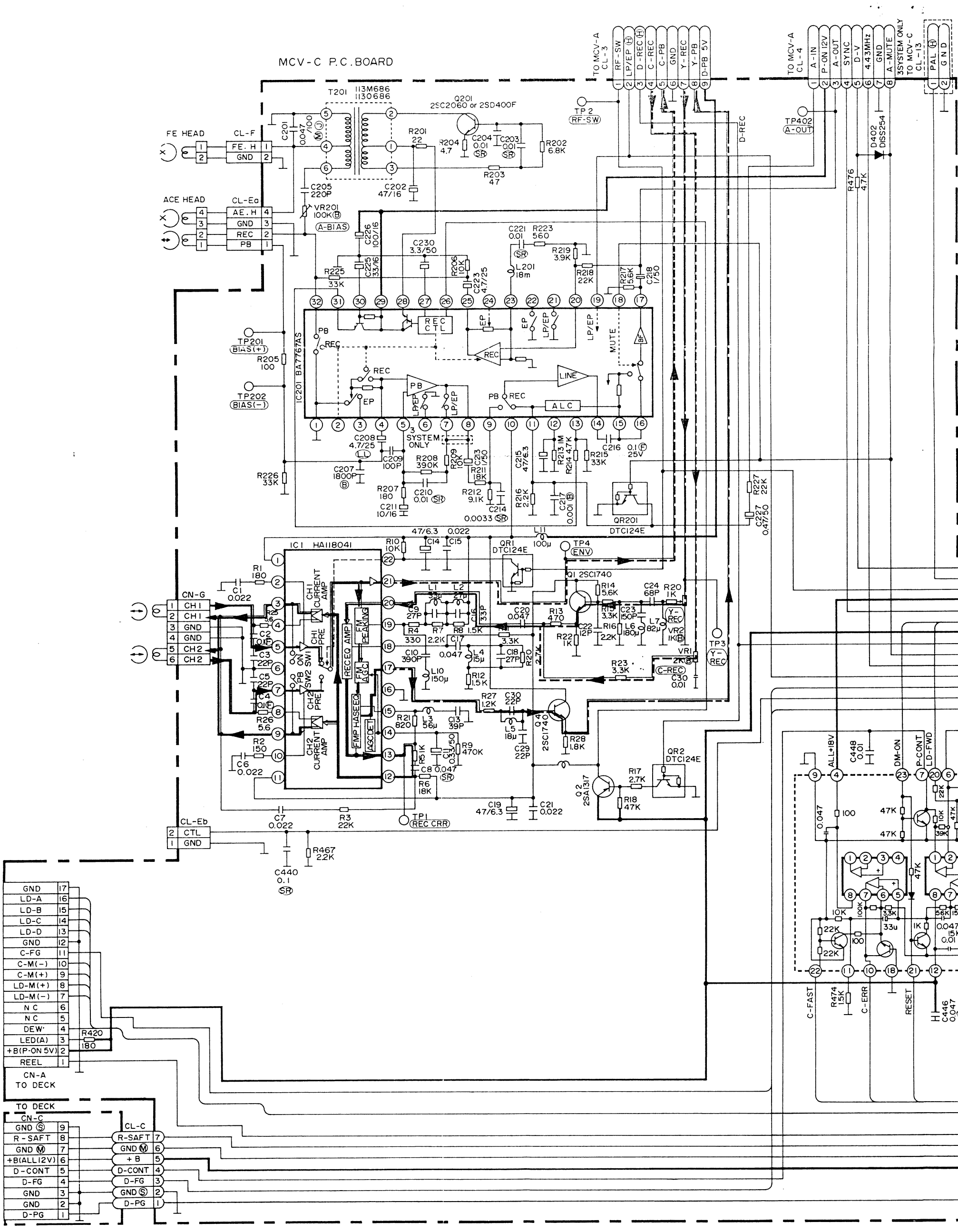
—·—·— Luminance

····· Chrominance

K2800-T

HEAD AMP/AUDIO/SERVO/3 SYSTEM

NOTES:
1. ALL RESISTANCE VALUES ARE INDICATED
2. ALL CAPACITANCE VALUES ARE INDICATE
3. VOLTAGES ARE MEASURED WITH SSVM (
   AT NO SIGNAL CONDITION UNLESS OTHER
4. CAPACITOR TYPES ARE (PL) = POLYPROP
   CERAMIC.



Play Mode

——— Luminance + Chrominance

—·—·—·— Luminance

····· Chrominance

Rec. Mode

——— Luminance + Chrominance

—·—·—·— Luminance

····· Chrominance

ES:
LL RESISTANCE VALUES ARE INDICATED IN OHM (K=10^3, m=10^6).
LL CAPACITANCE VALUES ARE INDICATED IN μF (P=10^{-6} μF).
OLTAGES ARE MEASURED WITH SSVM (Z: > 10K OHM) FRONT POINT INDICATED TO CHASSIS GROUND
T NO SIGNAL CONDITION UNLESS OTHERWISE NOTED. (SEE VOLTAGE CHART.)
APACITOR TYPES ARE (PL) = POLYPROPYLANE, (SC) = SEMI-CONDUCTIVE, (M) = MYLAR, OTHERS ARE
ERAMIC.

WARNING:
REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHOWING ON THIS SCHEMATIC DIAGRAM. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS. DON'T DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING. SERVICE PERSONNEL SHOULD MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSES PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPALIANCE TO THE CUSTOMER.

3SYSTEM MODEL ONLY

SVV P.C.BOARD

TO MCV-A CL-4 — A-IN, P-ON 12V, A-OUT, SYNC, D-V, 4.43MHz, GND, A-MUTE, 3SYSTEM ONLY, TO MCV-C CL-13, PAL Ⓗ, GND

TP402 A-OUT

D402 DISS254

R476 4.7K

IC 451 MN74HC4053 or TC74HC4053A

IC 452 MN74HC4053 or TC74HC4053A

IC 453 MN74HC4053 or TC74HC4053A

C485 0.1 Ⓕ16V

C476 0.022

C483 330/6.3

IC 454 14DN362

CTL VR451 100K Ⓑ

C477 0.15 Ⓜ

S-DATA

S-CLK

TP452 3.58

D-V(N)

C482 10P

RF-SW (N)

D-PH(N)

D-SP(N)

C-SP(N)

C-PH(N)

C472 330P

R482 1K

Q450 2SC2058

R483 1K

C471 390P

C469 820P

R484 10K

R485 10K

C468 47/6.3

L452 100μH

X450 3.58MHz

R486 2.2K

C463 0.015 SR

R487 18K

VR452 200K Ⓜ Ⓑ

SW POINT

C467 0.033 Ⓜ

C466 0.1 SR

C461 47/6.3

C460 8.2/16

R488 100

C462 47/6.3

C481 0.01 SR 25V

C458 2.2/50

TP451 CTL

C457 10/16

R489 10K Ⓖ

R490 10K Ⓖ

C456 0.047

C455 1/50

C459 10/16

R491 4.7K

C451 0.047 SR

C453 0.022 SR

R492 1K

C450 1/50

C-FG

D-FG

R493 2.2K

R494 2.2K

C454 1/50

TO DECK CN-E6 — CTL 2, GND 1

CL-11 — PAL Ⓗ, TR-VR(P), RF-SW, D-FG, D-PG, C-FG, D-V, TR-VR, D-PH, P-ON 5V, D-SP, C-SP, C-PH, C-SP(P), C-SP(P), D-SP(P), D-PH(P), RF-SW(P), D-V(P), S-CLK, S-DATA, CTL(P), GND

R480 10K — 3SYSTEM 8.2K ONLY

C448 0.01

R473 4.7K

C445 0.22/50

ALL+18V, DM-ON, P-CONT, LD-FWD

C422 1/50

C420 1/50

R459 4.7K

R451 47K

R452 470K

R453 2.2K

Q405 2SC1740

C431 0.047 16V

C425 1/50

R454 2.2K

IC402 14DN363

C428 0.022 SR

C426 1/50

R470 1K

C430 10/16

C433 2.2/50 NP

C434 8.2/16

C435 47/6.3

C436 0.1 SR

VR401 Ⓜ

SW POINT

TP401 CTL

R462 10K Ⓖ

D451 1SS254

R463 100

R471 150

R466 Ⓑ 33K 200K

R472 13K

C447 47/10

C441 0.033 Ⓜ Ⓙ

C432 10/16

C427 0.047 SR

R461 10K Ⓖ

C437 0.0047 SR

R464 10K

QR401 DTC124E or 2SC3400

R465 10K

C439 0.1 SR

C438 0.0047 SR

HIC402 1812240 ⚠

C-FAST, C-ERR, RESET

R474 1.5K

C446 0.047 Ⓕ

CTL VR402 200K Ⓑ

C442 0.15 Ⓜ

R498 10K

R499 10K

EP, LP/EP Ⓗ, S-CLK, S-DATA

PWM, R-MODE DISC, D-V GEN, RCK, MODE CONT, TR MM, GAIN CONT, DM-PH, R-CTL, DM-SP, 1/2, MM, I/N, CAP-SP, CAP-PH, AMP, V. REF, CLP, CTL-AMP, V-SYNC CLP

P-ON 5V, RF-SW, SYNC (MAIN)

TO MCV-B CL-10

1	A-MUTE
2	REEL
3	N C
4	C-M(+)
5	C-M(-)
6	LD-M(+)
7	LD-M(-)
8	LD-D
9	LD-C
10	LD-B
11	LD-A
12	GND Ⓢ
13	DEW
14	D-REC
15	R-SAFT
16	+B(ALL 12V)
17	GND(M)
18	PAUSE
19	P-ON 5V
20	S-DATA
21	S-CLK
22	DM-ON
23	C-FAST
24	RESET
25	LD-FWD
26	C-ERR
27	ALL 18V
28	TR-VR

uminance + Chrominance

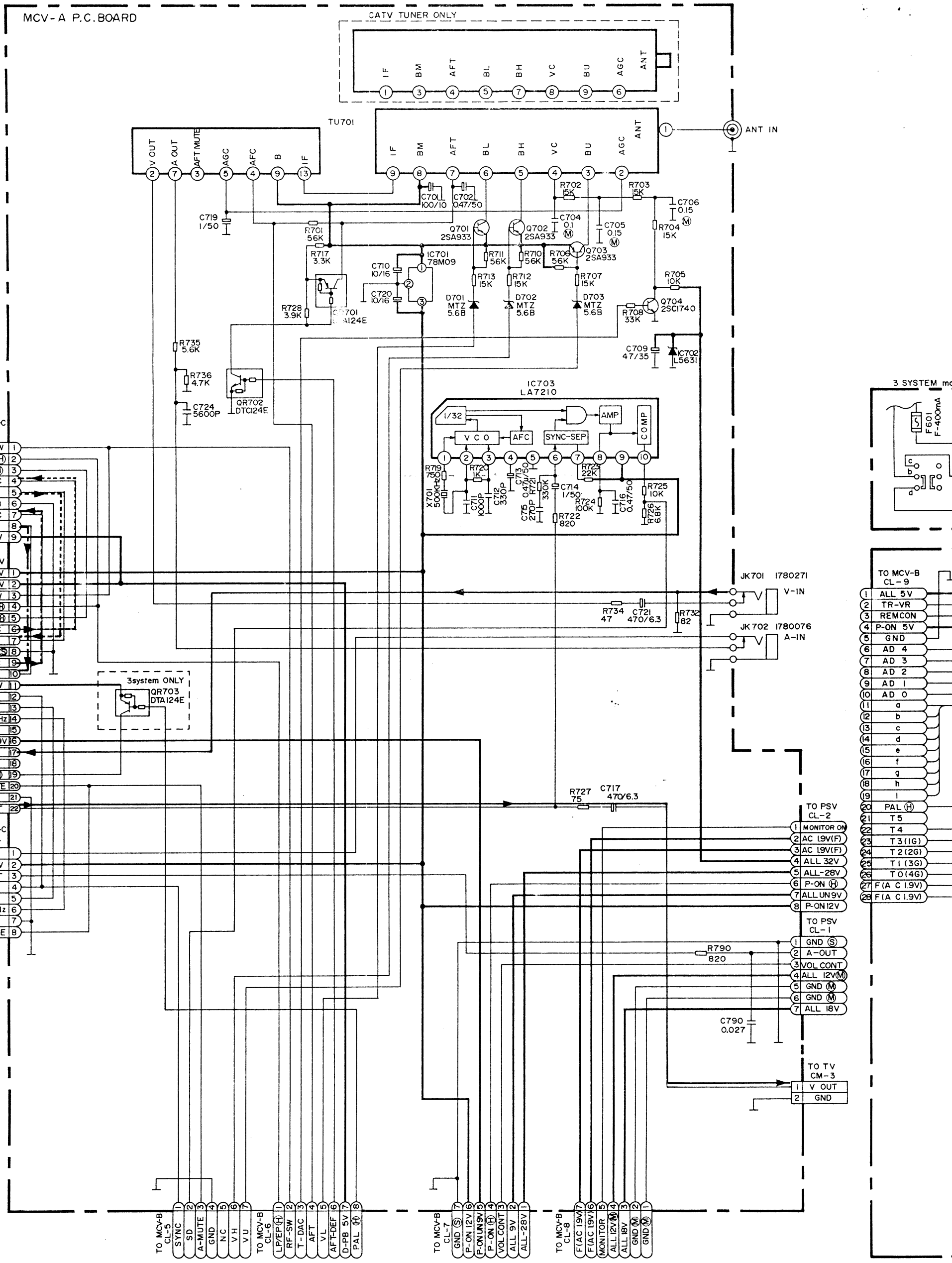
uminance

hrominance

—o---o— NTSC Model Only

K2800-H

TUNER/POWER SUPPLY/CONTROL



WARNING:
REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHOWING ON THIS SCHEMATIC DIAGRAM. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS. DON'T DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING. SERVICE PERSONNEL SHOULD MAKE LEAKAGE-CURRENT OR RESISTANCE MESUREMENTS TO DETERMINE THAT EXPOSES PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPALIANCE TO THE CUSTOMER.

NOTES:
1. ALL RESISTANCE VALUES ARE INDICATED IN OHM (K=10^3, m=10^6).
2. ALL CAPACITANCE VALUES ARE INDICATED IN µF (P=10^{-6} µF).
3. VOLTAGES ARE MEASURED WITH SSVM (Z: > 10K OHM) FRONT POINT I AT NO SIGNAL CONDITION UNLESS OTHERWISE NOTED. (SEE VOLTAGE
4. CAPACITOR TYPES ARE (PL) = POLYPROPYLANE, (SC) = SEMI-CONDUC CERAMIC.

ICATED IN OHM (K=10^3, m=10^6).
DICATED IN μF (P=10^{-6} μF).
SSVM (Z: > 10K OHM) FRONT POINT INDICATED TO CHASSIS GROUND
OTHERWISE NOTED. (SEE VOLTAGE CHART.)
YPROPYLANE, (SC) = SEMI-CONDUCTIVE, (M) = MYLAR, OTHERS ARE

Rec. Mode

——— Luminance + Chrominance

—·—·— Luminance

····· Chrominance

Play Mode

——— Luminance + Chrominance

—·—·— Luminance

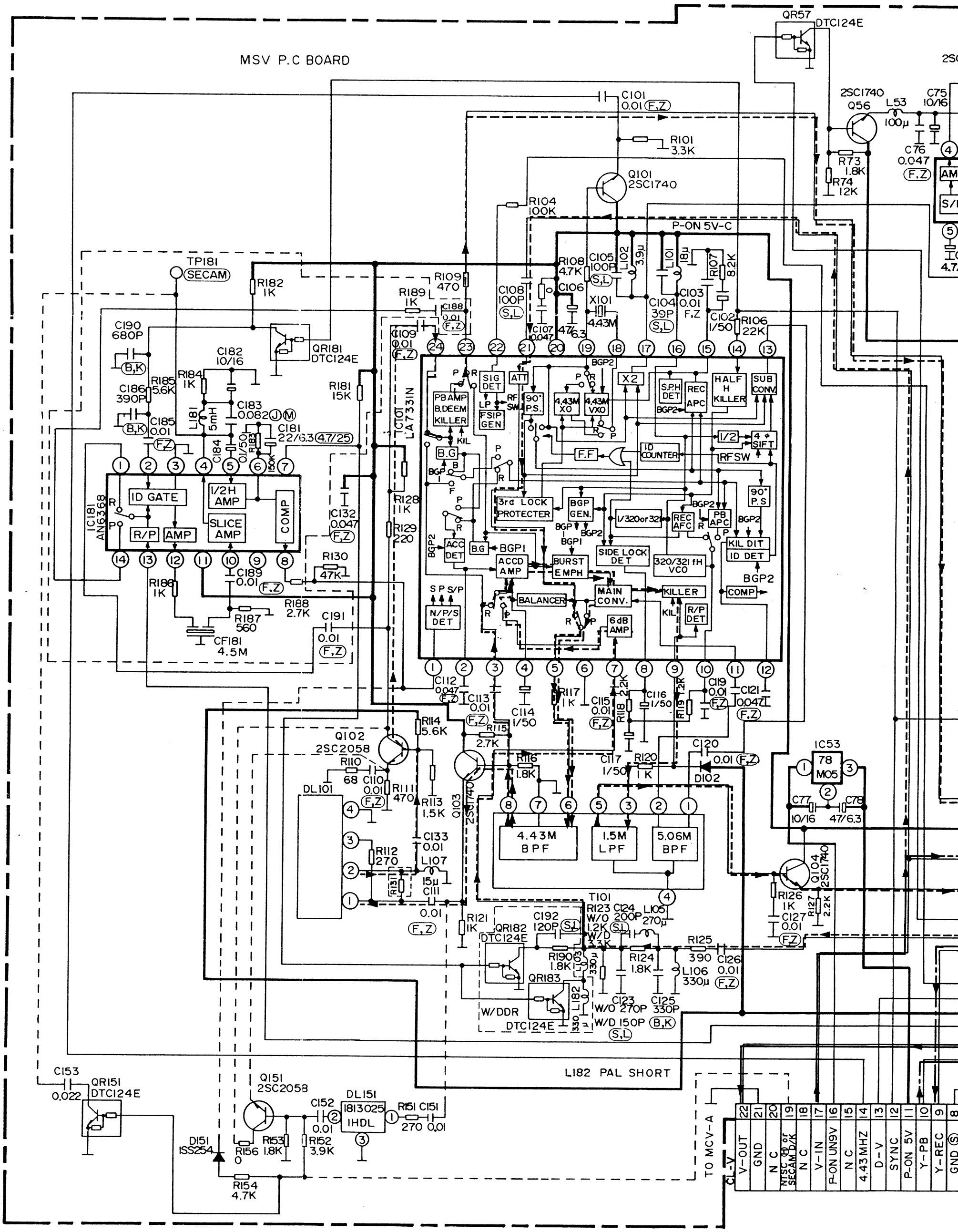
····· Chrominance

K2800-T

15. SCHEMATIC DIAGRAM

VIDEO

NOTES:
1. ALL RESISTANCE VALUES ARE INDICATED IN OHM (K=10^3, m=10^6).
2. ALL CAPACITANCE VALUES ARE INDICATED IN μF (P=10^{-6} μF).
3. VOLTAGES ARE MEASURED WITH SSVM (Z: > 10K OHM) FRONT POINT INDICAT
   AT NO SIGNAL CONDITION UNLESS OTHERWISE NOTED. (SEE VOLTAGE CHART
4. CAPACITOR TYPES ARE (PL) = POLYPROPYLANE, (SC) = SEMI-CONDUCTIVE, (M
   CERAMIC.



Play Mode

——— Luminance + Chrominance

-·-·-·- Luminance

····· Chrominance

Rec. Mode

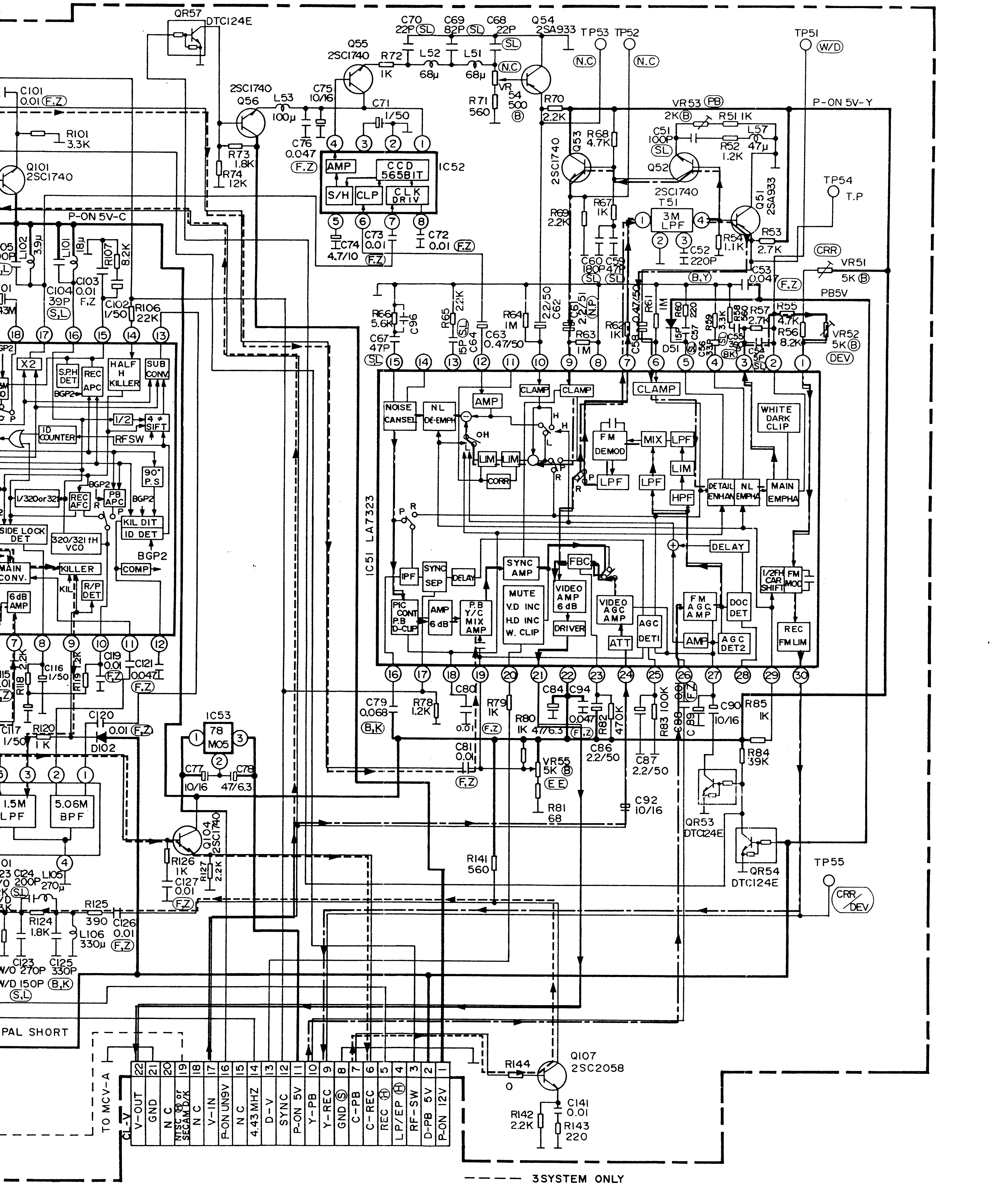
——— Lumi

-·-·-·- Lumi

····· Chro

OTES:
ALL RESISTANCE VALUES ARE INDICATED IN OHM (K=10^3, m=10^6).
ALL CAPACITANCE VALUES ARE INDICATED IN μF (P=10^{-6} μF).
VOLTAGES ARE MEASURED WITH SSVM (Z: > 10K OHM) FRONT POINT INDICATED TO CHASSIS GROUND AT NO SIGNAL CONDITION UNLESS OTHERWISE NOTED. (SEE VOLTAGE CHART.)
CAPACITOR TYPES ARE (PL) = POLYPROPYLANE, (SC) = SEMI-CONDUCTIVE, (M) = MYLAR, OTHERS ARE CERAMIC.

WARNING:
REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHOWING ON THIS SCHEMATIC DIAGRAM. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS. DON'T DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING. SERVICE PERSONNEL SHOULD MAKE LEAKAGE-CURRENT OR RESISTANCE MESUREMENTS TO DETERMINE THAT EXPOSES PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPALIANCE TO THE CUSTOMER.



QR57 DTC124E
C70 22P (SL)
C69 82P (SL)
C68 22P (SL)
Q54 2SA933
TP53
TP52
TP51 (W/D)
Q55 2SC1740
R72 1K
L52 68μ
L51 68μ
VR54 500 (B)
R71 560
R70 2.2K
2SC1740 Q56
L53 100μ
C75 10/16
C71 1/50
C76 0.047 (F.Z)
R73 1.8K
R74 12K
IC52
AMP
CCD 565BIT
S/H
CLP
CLK DRIV
C74 4.7/10
C73 0.01 (F.Z)
C72 0.01 (F.Z)
C101 0.01 (F.Z)
R101 3.3K
Q101 2SC1740
P-ON 5V-C
VR53 (PB) 2K (B)
R51 1K
C51 100P (SL)
R52 1.2K
L57 47μ
P-ON 5V-Y
Q53 2SC1740
R68 4.7K
Q52 2SC1740
TP54 T.P
T51 3M LPF
Q51 2SA933
R53 2.7K
R54 1.1K
C52 220P
R67 1K
R69 2.2K
C60 180P (SL)
C59 47P (SL)
(CRR)
VR51 5K (B)
C53 0.047 (F.Z)
(B.Y)
PB5V
R66 5.6K
C96
C67 47P (SL)
R65 2.2K
C64 15P (SL)
C63 0.47/50
R64 1M
C62 2.2/50
C61 2.2/51 (N.P)
R63 1M
R62 1K
C58 0.47/50
R61 1M
R60 220
D51
C57 15P
R59 3.3K
C56 33P
R58 560
C55 390 (BK)
C54 5P (SL)
R57 2.7K
R55 4.7K
R56 8.2K
VR52 5K (B) (DEV)
IC51 LA7323
NOISE CANSEL
NL DE-EMPH
AMP
CLAMP
CLAMP
CLAMP
LIM
LIM
CORR
FM DEMOD
MIX
LPF
LIM
LPF
LPF
HPF
WHITE DARK CLIP
DETAIL ENHAN
NL EMPHA
MAIN EMPHA
DELAY
IPF
SYNC SEP
DELAY
SYNC AMP
FBC
MUTE V.D INC H.D INC W. CLIP
VIDEO AMP 6 dB
DRIVER
VIDEO AGC AMP
ATT
AGC DETI
FM AGC AMP
DOC DET
AMP
AGC DET2
1/2FH CAR SHIFT
FM MOD
REC FM LIM
PIC CONT P.B D-CLIP
AMP 6 dB
P.B Y/C MIX AMP
C79 0.068 (B,K)
R78 1.2K
C80 0.01
C81 0.01 (F.Z)
R79 1K
R80 1K
C84 47/6.3
C94 0.047 (F.Z)
R82 470K
C86 2.2/50
C87 2.2/50
R83 100K
C88 0.01 (F.Z)
C89
C90 10/16
R85 1K
R84 39K
VR55 5K (B) (E.E)
R81 68
C92 10/16
QR53 DTC124E
QR54 DTC124E
TP55 (CRR/DEV)
R141 560
C105 ...00P (S,L)
L102 3.9μ
L101 18μ
R107 8.2K
C103 0.01 F.Z
C104 39P (S,L)
C102 1/50
R106 22K
X2
S.P.H DET
REC APC
HALF H KILLER
SUB CONV
1/2
4φ SIFT
ID COUNTER
RFSW
90° P.S
1/320or321
REC AFC
PB APC
BGP2
KIL DIT
ID DET
SIDE LOCK DET
320/321fH VCO
MAIN CONV.
KILLER
KIL
R/P DET
COMP
6dB AMP
R118 2.2K
C116 1/50
R119 2.2K
C119 0.01 (F.Z)
C121 0.047 (F.Z)
C117 1/50
R120 1K
C120 0.01 (F.Z)
D102
IC53 78M05
C77 10/16
C78 47/6.3
1.5M LPF
5.06M BPF
Q104 2SC1740
R126 1K
R127 2.2K
C127 0.01 (F.Z)
C124 200P (S.L)
L105 270μ
R125 390
C126 0.01 (F.Z)
R124 1.8K
L106 330μ
C123 W/O 270P W/D 150P (B,K) (S,L)
C125 330P
PAL SHORT
TO MCV-A
CL-V
22 V-OUT
21 GND
20 N C
19 NTSC (H) or SECAM D/K
18 N C
17 V-IN
16 P-ON UN9V
15 N C
14 4.43MHZ
13 D-V
12 SYNC
11 P-ON 5V
10 Y-PB
9 Y-REC
8 GND (S)
7 C-PB
6 C-REC
5 REC (H)
4 LP/EP (H)
3 RF-SW
2 D-PB 5V
1 P-ON 12V
R144 0
Q107 2SC2058
C141 0.01
R142 2.2K
R143 220
3SYSTEM ONLY

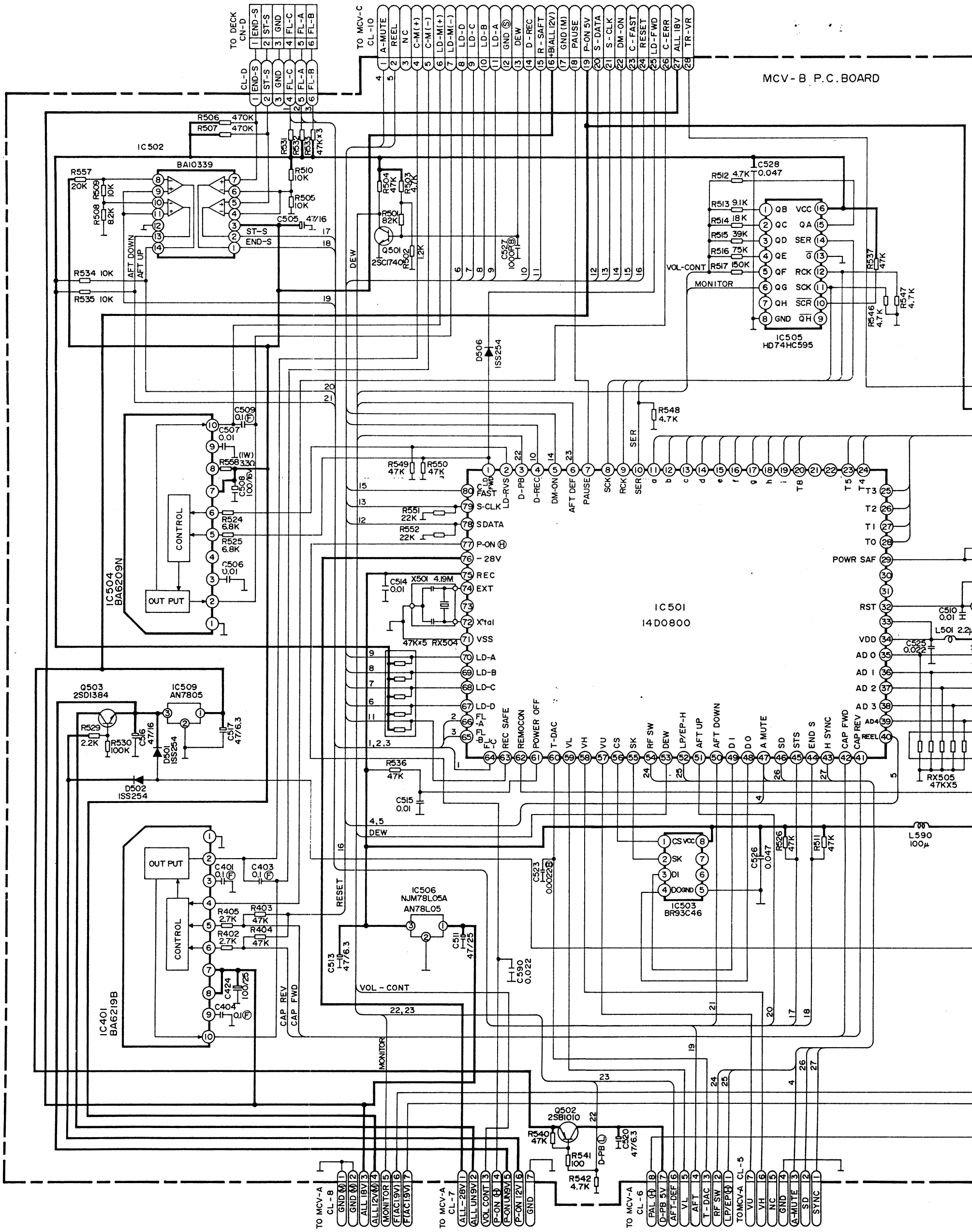
Rec. Mode

...minance + Chrominance	————	Luminance + Chrominance
...minance	—·—·—	Luminance
...rominance	--------	Chrominance

NTSC-H: NTSC-H Model Only
SECAM D/K: SECAM D/K Model Only
EDIT: EDIT Model Only
LP: LP Model Only
DDR: ME SECAM Model Only

K2800-V

SYSTEM CONTROL/SERVO



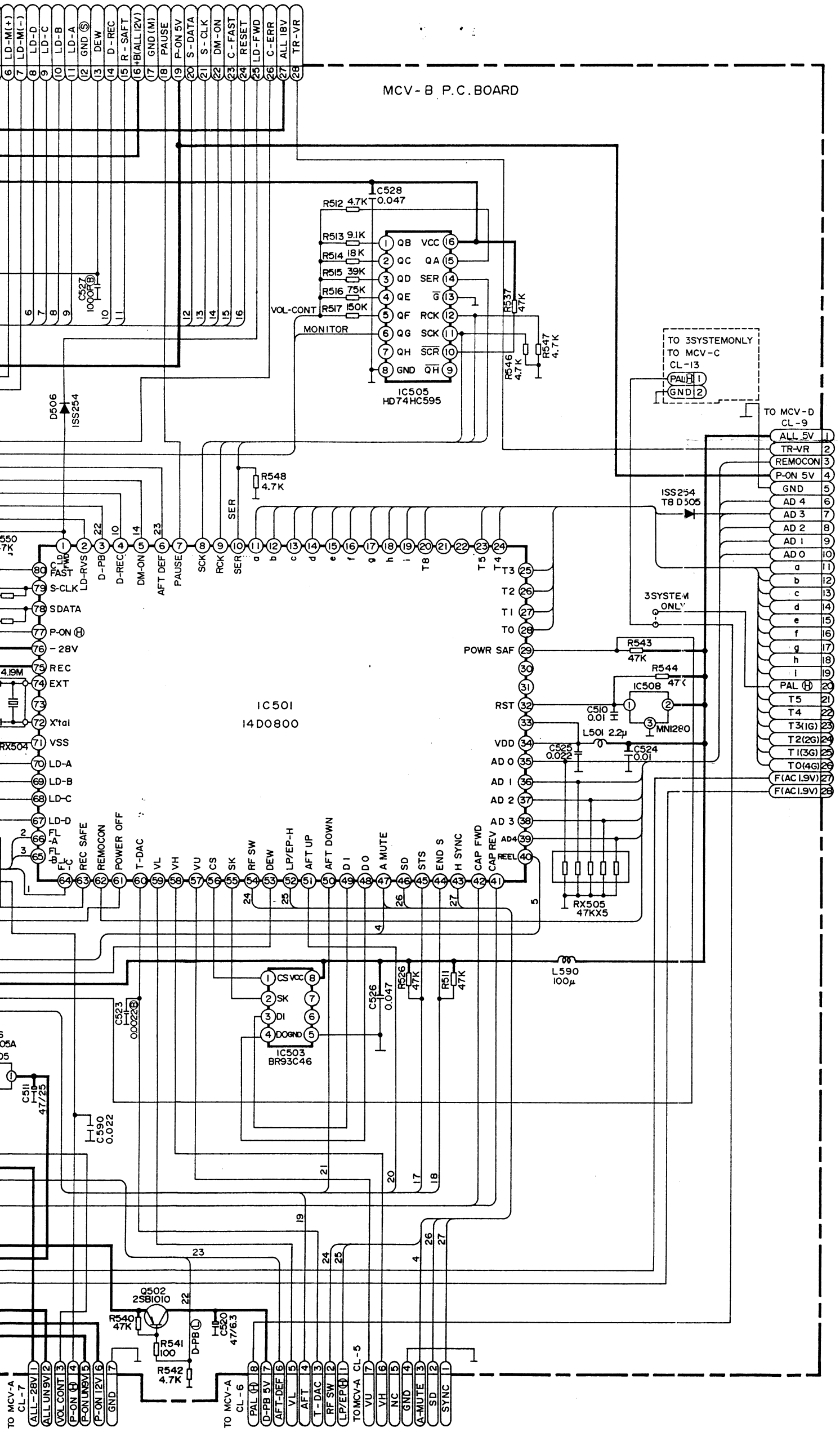
NOTES:

1. ALL RESISTANCE VALUES ARE INDICATED IN OHM (K=10^3, m=10^6).
2. ALL CAPACITANCE VALUES ARE INDICATED IN µF (P=10^{-6} µF).
3. VOLTAGES ARE MEASURED WITH SSVM (Z: > 10K OHM) FRONT POINT INDICATED TO CHASSIS GROUND AT NO SIGNAL CONDITION UNLESS OTHERWISE NOTED. (SEE VOLTAGE CHART.)
4. CAPACITOR TYPES ARE (PL) = POLYPROPYLANE, (SC) = SEMI-CONDUCTIVE, (M) = MYLAR, OTHERS ARE CERAMIC.

WARNING:

REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACT
ON THIS SCHEMATIC DIAGRAM. REPLACE THESE CRITICAL COM
MENT PARTS. DON'T DEGRADE THE SAFETY OF THIS SET THRO
SONNEL SHOULD MAKE LEAKAGE-CURRENT OR RESISTANC
EXPOSES PARTS ARE ACCEPTABLY INSULATED FROM THE SUP
PALIANCE TO THE CUSTOMER.

RVO



- CHASSIS GROUND

YLAR, OTHERS ARE

WARNING:
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STANDARD NOTES

Temperature character of mark

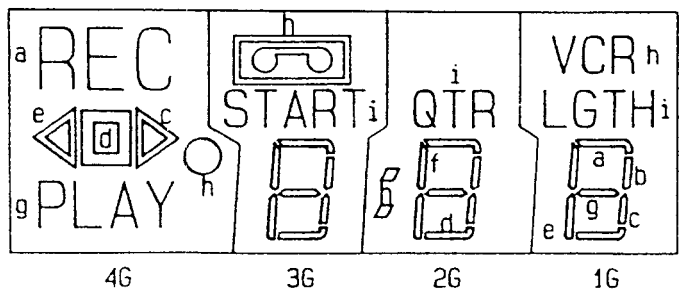
Mark	Capacity change rate	Standard temperature	Use temperature of extent
Ⓑ	± 10 %	20 ℃	-25 ~ +85℃
Ⓕ	+30−80%	20 ℃	-25 ~ +85℃
(SR)	± 15 %	20 ℃	-25 ~ +85℃
(Z)	+30−80%	20 ℃	-10 ~ +70℃

WARNING

Replacement parts which special safety characteristics are identified by ⚠ showing on this schematic diagram. Replace these critical components with recommended replacement parts. Don't degrade the safety of this set through improper servicing. Service personnel to make leakage current or resistance measurement to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

NOTES

① Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.
② All resistance values are indicated in ohm (K=10^3, M=10^6).
③ Resister wattage without mentioned are 1/5W.
④ All capacitance values are indicated in μF (P=$10^{-6}\mu$F).



VOLTAGE CHARTS

* All voltages are DC mesured and indicated in volt.

MCV-A P. C. Board

IC701

Mode \ Pin No.	GND	IN	OUT
REC	0	11.9	9.1
PLAY	0	11.9	9.1
E-E	0	11.9	9.1

IC703

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	9.6	9.1	9.1	5.6	0	9.3	0.3	1.2	11.9	10.9
PLAY	9.7	9.2	9.2	5.6	0	9.4	0.3	1.5	11.9	11.0
E-E	9.7	9.2	9.2	5.6	0	9.4	0.3	1.2	11.9	11.0

Q701

Mode \ Pin No.	E	C	B
REC	9.1	8.9	8.4
PLAY	9.1	8.9	8.4
E-E	9.1	8.9	8.4

Q702

E	C	B
9.1	0	8.9
9.1	0	8.8
9.1	0	8.9

Q703

E	C	B
9.1	0	8.9
9.1	0	8.9
9.1	0	8.9

Q704

Mode \ Pin No.	E	C	B
REC	0	3.8	0.5
PLAY	0	3.8	0.5
E-E	0	3.8	0.5

QR701

Mode \ Pin No.	E	C	B
REC	9.1	4.7	9.1
PLAY	9.1	4.5	9.1
E-E	9.1	4.5	9.1

QR702

E	C	B
0	9.1	0
0	9.1	0
0	9.1	0

MCV-B P. C. Board

IC401

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	0	3.2	4.8	2.8	3.8	0	18.0	18.0	0.1	0
PLAY	0	3.2	4.8	2.8	3.8	0	18.0	18.0	0.1	0.1
E-E	0	0	0	3.2	0	0	18.0	18.0	0	0

IC501

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	5.0	5.0	5.0	5.0	0	0	2.0	0	5.0	0
PLAY	5.0	5.0	4.2	0	0	0	2.5	0	5.0	0
E-E	0	0	0	0	0	0	0	0	5.0	0

Mode \ Pin No.	11	12	13	14	15	16	17	18	19	20
REC	-23.0	-23.0	-23.0	-26.8	-26.8	-26.8	-26.8	-23.0	-26.8	-24.0
PLAY	-26.9	-23.0	-23.0	-26.9	-26.9	-26.9	-23.2	-23.0	-26.8	-24.0
E-E	-26.9	-23.0	-23.0	-23.0	-26.9	-26.9	-26.9	-23.2	-26.9	-24.0

Mode \ Pin No.	21	22	23	24	25	26	27	28	29	30
REC	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	-24.0	4.9	2.5
PLAY	-24.0	-24.0	-24.0	-24.0	-24.2	-24.2	-24.2	-24.2	5.0	2.5
E-E	-24.0	-24.2	-24.1	-24.1	-24.2	-24.2	-24.2	-24.2	5.0	2.5

Mode \ Pin No.	31	32	33	34	35	36	37	38	39	40
REC	0.9	5.0	5.0	5.0	0	0	0	0.4	0	0.5
PLAY	0.9	5.0	5.0	5.0	0	0	0	0.4	0	0.5
E-E	0.9	0	5.0	5.0	0	0	0	0.4	0	0.5

Mode \ Pin No.	41	42	43	44	45	46	47	48	49	50
REC	0	4.9	0.9	0	5.0	4.5	5.0	2.0	0	5.1
PLAY	0	4.9	0.9	5.0	5.0	4.5	0	0.5	0	5.1
E-E	0	0	0	5.0	5.0	4.5	5.0	0.6	0	5.1

Mode \ Pin No.	51	52	53	54	55	56	57	58	59	60
REC	0	1.7	0	2.9	0	0	5.0	5.0	0	4.1
PLAY	0	0.8	5.0	2.5	0	0	5.0	5.0	0	4.1
E-E	0	0.5	5.0	0	0	0	5.0	5.0	0	4.1

Mode \ Pin No.	61	62	63	64	65	66	67	68	69	70
REC	5.0	4.9	0	0	5.0	5.0	0	0	5.0	5.0
PLAY	5.0	4.9	0	0	5.0	5.0	5.0	0	5.0	5.0
E-E	5.0	4.9	0	0	5.0	5.0	0	5.0	5.0	5.0

Mode \ Pin No.	71	72	73	74	75	76	77	78	79	80
REC	0	2.5	5.0	2.4	5.1	-28.0	5.0	5.0	5.0	0
PLAY	0	2.4	5.0	2.2	5.0	-28.0	5.0	5.0	5.0	0
E-E	0	2.4	5.0	2.2	5.0	-28.0	5.0	5.0	5.0	0

IC502

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	5.0	5.0	12.0	2.6	4.7	2.6	4.7	5.7	4.6	2.6
PLAY	5.0	5.0	12.0	2.6	4.7	2.6	4.7	5.7	4.6	2.6
E-E	5.0	5.0	12.0	2.6	4.7	2.6	4.7	5.7	4.6	2.6

Mode \ Pin No.	11	12	13	14
REC	4.6	0	5.1	0
PLAY	4.6	0	5.1	0
E-E	4.6	0	5.1	0

IC503

Mode \ Pin No.	1	2	3	4	5	6	7	8
REC	0	0	0	0.3	0	0	0	5.1
PLAY	0	0	0	0.2	0	0	0	5.1
E-E	0	0	0	0.2	0	0	0	5.1

IC504

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	0	0.5	0.9	3.2	1.9	1.9	12.0	12.0	0.9	0.5
PLAY	0	0.5	0.9	0.9	1.9	1.9	12.0	12.0	0.9	0.5
E-E	0	0.5	0.9	3.2	1.9	1.9	12.0	12.0	0.9	0.5

IC505

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	5.1	0	5.1	5.1	5.1	0	0	0	0	5.0
PLAY	5.1	0	5.1	5.1	5.1	0	0	0	0	5.0
E-E	5.1	0	5.1	5.1	5.1	0	0	0	0	5.0

Mode \ Pin No.	11	12	13	14	15	16
REC	0	5.0	0	0	0	5.1
PLAY	0	5.0	0	0	0	5.1
E-E	0	5.0	0	0	0	5.1

IC506

Mode \ Pin No.	IN	GND	OUT
REC	5.1	0	18.0
PLAY	5.1	0	18.0
E-E	5.1	0	18.0

IC508

Mode \ Pin No.	OUT	IN	GND
REC	5.0	5.0	0
PLAY	5.0	5.0	0
E-E	5.0	5.0	0

IC509

Mode \ Pin No.	IN	GND	OUT
REC	8.6	0	5.0
PLAY	8.5	0	5.0
E-E	9.0	0	5.0

Q501 / Q502 / Q503

Mode \ Pin No.	Q501 E	Q501 C	Q501 B	Q502 E	Q502 C	Q502 B	Q503 E	Q503 C	Q503 B
REC	0	5.0	0	5.0	0.5	5.0	8.6	9.0	9.3
PLAY	0	5.0	0	5.0	5.0	4.3	8.5	9.1	9.3
E-E	0	5.1	0	5.0	0.6	4.9	9.0	9.5	9.7

MCV-C P.C.Board

IC1

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	0.5	0	3.7	3.8	0	0	0	3.8	3.7	0
PLAY	5.0	2.2	0	0	0.7	0	0.7	0	0	2.2
E-E	0.5	0.1	0	0	0	0	0	0	0	0.1

Mode \ Pin No.	11	12	13	14	15	16	17	18	19	20
REC	4.6	1.5	2.3	0	2.3	0	0.2	3.7	0.5	1.1
PLAY	0	0	2.0	1.5	2.0	0	2.5	0	4.6	0
E-E	0	0	0	0	0	0	0.2	0	0.5	0

Mode \ Pin No.	21	22
REC	0.2	0.2
PLAY	3.1	1.7
E-E	0.3	0.5

IC201

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	0	11.0	0	2.0	2.5	0.5	2.0	2.0	0	0.5
PLAY	0	8.3	0	2.0	2.0	0.5	2.0	2.0	0	5.0
E-E	0	8.3	0	2.0	2.0	0.5	2.0	2.0	0	0.5

Mode \ Pin No.	11	12	13	14	15	16	17	18	19	20
REC	0	0	9.7	5.9	5.7	5.7	5.8	5.0	0.5	0
PLAY	0	0	9.7	5.9	5.7	5.7	5.8	0	0.5	0
E-E	0	0	9.7	5.9	5.7	5.7	5.8	5.0	0.5	0

Mode \ Pin No.	21	22	23	24	25	26	27	28	29	30
REC	0.5	0.5	0.6	0.7	5.6	4.9	11.8	10.3	11.9	11.8
PLAY	0.5	0.5	0.6	0.6	5.6	0	0	0.3	11.9	11.8
E-E	0.5	0.5	0.6	0.5	5.6	0	0	0.3	11.9	11.8

Mode \ Pin No.	31	32
REC	11.0	0
PLAY	11.0	0
E-E	11.0	0

IC401

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	5.0	0.8	5.0	5.0	2.5	0	0.1	0	0	2.5
PLAY	5.0	0.8	5.0	5.0	2.5	0	0.1	0	0	2.5
E-E	5.0	0.8	5.0	5.0	2.5	0	0.1	0	0	0

Mode \ Pin No.	11	12	13	14	15	16	17	18	19	20
REC	2.5	2.5	2.5	2.6	0	2.5	2.5	2.5	2.5	2.5
PLAY	2.5	2.5	2.3	2.8	0	2.5	2.5	2.5	2.5	2.5
E-E	2.5	5.0	5.0	2.5	0	2.5	2.5	2.5	2.5	2.5

Mode \ Pin No.	21	22	23	24	25	26	27	28
REC	2.5	1.5	0	2.8	3.0	5.0	2.6	1.8
PLAY	2.0	2.5	0	2.5	2.5	5.0	2.6	1.8
E-E	1.5	2.5	0	2.5	2.5	5.0	2.6	0

HIC402

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC				18.0	2.5	2.5	2.0	2.5	0	2.8
PLAY				18.0	2.5	2.5	2.0	2.5	0	2.8
E-E				18.0	2.8	2.7	0	4.1	0	3.2

Mode \ Pin No.	11	12	13	14	15	16	17	18	19	20
REC	0	5.0	2.5	2.6	2.5	2.5	2.5	0		4.5
PLAY	0	5.0	2.5	2.8	2.3	2.5	2.5	0		4.5
E-E	0	5.0	2.5	2.5	5.0	5.0	2.5	0		4.5

Mode \ Pin No.	21	22	23
REC	2.5	0	0
PLAY	2.5	0	0
E-E	3.2	0	5.0

Q1

Mode \ Pin No.	E	C	B
REC	1.6	4.6	2.3
PLAY	0.4	0	0
E-E	0	0	0

Q2

E	C	B
5.0	4.9	4.2
5.0	0	5.0
5.0	0	5.0

Q4

E	C	B
0	0.5	0.2
1.9	5.0	2.5
0	0.5	0.2

Q201

Mode \ Pin No.	E	C	B
REC	0.2	9.3	0
PLAY	0	0.2	0.2
E-E	0	0.2	0.2

Q405

E	C	B
0	3.3	0.7
0	3.3	0.7
0	3.3	0.7

QR1

Mode \ Pin No.	E	C	B
REC	0	0.2	2.5
PLAY	0	1.9	2.5
E-E	0	0.5	0

QR2

E	C	B
0	0	0.5
0	5.0	0
0	5.0	0

QR201

E	C	B
0	0	5.0
0	0	0
0	0	5.0

QR401

Mode \ Pin No.	E	C	B
REC	2.5	5.0	2.5
PLAY	2.5	5.0	2.5
E-E	0	5.0	0

MSV P.C.Board

IC51

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	2.35	2.60	2.60	3.42	2.85	3.55	2.78	0	0.83	3.31
PLAY	2.35	2.60	2.60	3.40	2.85	3.55	2.80	0	0.8	3.30
E-E	3.59	2.66	2.25	3.92	4.59	1.1	2.45	0	3.55	3.55

Mode \ Pin No.	11	12	13	14	15	16	17	18	19	20
REC	3.53	3.07	4.94	4.94	4.94	3.57	0.43	2.53	4.39	0
PLAY	3.5	3.1	4.9	4.9	4.9	3.6	0.4	2.5	4.4	0
E-E	0	3.08	3.34	3.34	4.16	3.52	0.4	2.53	4.39	0

Mode \ Pin No.	21	22	23	24	25	26	27	28	29	30
REC	2.62	5.03	3.64	3.23	3.01	3.78	1.4	0	4.10	3.45
PLAY	2.6	5.0	3.6	3.2	3.0	3.7	1.4	0	4.5	3.45
E-E	2.52	5.03	3.15	3.25	3.93	3.66	1.4	0	4.5	4.16

IC52

Mode \ Pin No.	1	2	3	4	5	6	7	8
REC	4.8	0	3.50	1.3	0	1.7	1.3	0.5
PLAY	4.77	0	3.5	1.3	0	1.6	1.3	0.5
E-E	8.44	0	12.0	2.9	5.72	1.7	1.9	2.7

IC53

Mode \ Pin No.	1	2	3
REC	8.31	0	5.04
PLAY	7.7	0	5.04
E-E	7.94	0	5.04

IC101

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	0	1.4	3.24	2.51	1.7	0	3.24	2.58	2.06	2.58
PLAY	0	1.4	3.2	2.5	1.7	0	3.2	2.6	2.1	2.6
E-E	0	1.4	3.24	2.5	2.7	0	3.24	2.57	4.43	2.58

Mode \ Pin No.	11	12	13	14	15	16	17	18	19	20
REC	2.60	2.0	4.68	0.6	2.24	5.03	5.03	3.12	3.98	5.03
PLAY	2.60	2.0	4.7	0.6	2.2	5.0	5.0	3.1	4.0	5.0
E-E	2.60	2.0	4.68	0.6	2.25	5.0	5.03	2.42	3.96	5.03

Mode \ Pin No.	21	22	23	24
REC	1.6	0.6	2.43	3.28
PLAY	1.6	2.5	2.5	3.3
E-E	1.6	1.8	2.0	3.4

IC181

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	3.2	2.94	0	1.3	2.01	2.24	3.58	0	1.7	2.36
PLAY	3.2	2.9	0	1.3	2.0	2.2	3.6	0	1.7	2.4
E-E	3.19	2.94	1.4	1.3	2.0	2.4	3.6	0	1.7	2.4

Mode \ Pin No.	11	12	13	14
REC	5.03	2.43	0.3	3.2
PLAY	5.0	2.4	0.3	3.2
E-E	5.0	2.43	4.98	3.2

Q51

Mode \ Pin No.	E	C	B
REC	2.0	0	1.4
PLAY	2.0	0	1.4
E-E	1.8	0	1.1

Q52

E	C	B
0.8	3.0	1.4
0.8	3.6	1.4
0.6	3.53	1.1

Q53

E	C	B
2.4	5.0	3.0
2.4	5.0	3.0
2.9	5.0	3.5

Q54

Mode \ Pin No.	E	C	B
REC	0.8	0	0.2
PLAY	1.2	0	0.2
E-E	1.5	0	0.8

Q55

E	C	B
0.7	4.8	1.3
0.7	4.8	1.2
2.3	8.44	2.9

Q56

E	C	B
4.86	11.48	5.5
4.9	11.4	5.6
8.67	11.4	9.26

Q101

Mode \ Pin No.	E	C	B
REC	3.39	5.03	3.98
PLAY	3.4	5.0	4.0
E-E	3.35	5.0	3.95

Q102

E	C	B
0.5	3.1	1.2
0.5	3.1	1.2
0.5	3.1	1.2

Q103

E	C	B
1.4	5.03	2.04
1.4	5.0	2.0
1.4	5.0	2.0

Q104

Mode \ Pin No.	E	C	B
REC	1.5	5.03	2.05
PLAY	1.4	5.0	2.0
E-E	3.8	5.0	4.43

Q151

E	C	B
0	5.1	0
0	4.2	0
0	5.1	0

QR53

Mode \ Pin No.	E	C	B
REC	0	0	1.5
PLAY	0	0	1.5
E-E	0	1.3	0

QR54

E	C	B
0	1.5	0.3
0	1.5	0
0	0	0.5

QR55

E	C	B
4.5	4.1	0
4.0	4.5	0
4.0	4.5	0

QR56

Mode \ Pin No.	E	C	B
REC	0	4.5	0
PLAY	0	4.0	0
E-E	0	4.0	0

QR57

E	C	B
0	5.5	1.5
0	5.6	1.5
0	9.26	0

QR102

E	C	B
0	0	3.57
0	0	3.6
0	0	3.58

QR103

Mode \ Pin No.	E	C	B
REC	0	0	3.57
PLAY	0	0	3.6
E-E	0	0	3.58

QR151

E	C	B
0	0	0
0	0	0
0	0	0

QR181

E	C	B
0	4.29	0.4
0	4.3	0.4
0	4.3	0.4

SVV P. C. Board (NTSC MODEL)

IC451

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	0.9	0.9	0.1	0.1	0.1	0	0	0	0	0
PLAY	0.8	0.8	0.1	0.1	0.1	0	0	0	0	0
E-E	0.7	0.7	0	0	0	0	0	0	0	0

Mode \ Pin No.	11	12	13	14	15	16
REC	0	0.9	1.9-2.3	0.8	0.9	5.0
PLAY	0	0	1.6	0	1.0	5.0
E-E	0	0	1.6	0	1.0	5.0

IC452

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	2.5	2.6	1.1	2.6	2.5	0	0	0	0	0
PLAY	2.5	0-2.0	1.0	2.5	2.5	0	0	0	0	0
E-E	2.5	2.5	5.0	5.0	5.0	0	0	0	0	0

Mode \ Pin No.	11	12	13	14	15	16
REC	0	2.5	0	2.5	0	0
PLAY	0	2.5-3.5	0	2.5-3.5	0-2.5	5.0
E-E	0	5.0	5.0	5.0	2.5	5.0

IC453

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	2.5	0	0	1.5	1.5	0	0	0	0	0
PLAY	2.5	2.5	0	1.5	1.5	0	0	0	0	0
E-E	0	0	0	1.5	1.5	0	0	0	0	0

Mode \ Pin No.	11	12	13	14	15	16
REC	0	2.5	2.5	2.5	2.5	5.0
PLAY	0	2.6	0-3.5	2.6	2.5	5.0
E-E	0	2.5	2.5	2.5	0	5.0

IC454

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	5.0	0.8	5.0	5.0	2.2	0	0.1	0	0	2.5
PLAY	5.0	0.8	5.0	5.0	2.2	0	0.1	0	0	2.5
E-E	5.0	0.8	5.0	5.0	2.2	0	0	0	0	0

Mode \ Pin No.	11	12	13	14	15	16	17	18	19	20
REC	2.5	2.5	2.5	2.6	0	2.5	2.5	2.5	2.5	2.5
PLAY	2.6	2.5	2.4	2.8	0	2.5	2.5	2.5	2.5	2.5
E-E	2.5	5.0	5.0	2.5	0	2.5	2.5	2.5	2.5	2.5

Mode \ Pin No.	21	22	23	24	25	26	27	28
REC	2.6	1.50	0	3.0	3.0	5.0	2.4	1.8
PLAY	2.0	2.5	0	2.5	2.5	5.0	2.4	1.8
E-E	1.5	2.5	0	2.5	2.5	5.0	2.4	4.9

Q450

Mode \ Pin No.	E	C	B
REC	2.2	5.0	2.5
PLAY	2.2	5.0	2.5
E-E	2.2	5.0	2.5

SVV P. C. Board (PAL MODEL)

IC451

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	0.5	0.5	0.1	0.1	0.1	0	0	0	4.5	4.5
PLAY	0.8	0.8	0.1	0.1	0.1	0	0	0	5.0	5.0
E-E	0.8	0.8	0	0	0	0	0	0	4.5	4.5

Mode \ Pin No.	11	12	13	14	15	16
REC	4.5	2.1	0	0	0	5.0
PLAY	5.0	1.6	0	0	1.0	5.0
E-E	4.5	1.7	0	0	0.8	5.0

IC452

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	2.6	2.5	2.5	2.5	3.7	0	0	0	4.5	4.5
PLAY	2.6	2.5	2.5	2.5	3.7	0	0	0	5.0	5.0
E-E	2.6	2.5	5.0	5.0	5.0	0	0	0	4.5	4.5

Mode \ Pin No.	11	12	13	14	15	16
REC	4.5	5.0	2.5	0	2.6	5.0
PLAY	5.0	5.0	2.3	2.4	2.6	5.0
E-E	4.5	5.0	5.0	5.0	2.6	5.0

IC453

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	2-2.8	0	2.4	2.4	0	0	0	0	4.5	4.5
PLAY	2-2.8	2-2.8	0	2.4	0	0	0	0	5.0	5.0
E-E	0	0	0	2.4	0	0	0	0	4.5	4.5

Mode \ Pin No.	11	12	13	14	15	16
REC	4.5	0-4.0	2.5	2.5	2.5	5.0
PLAY	5.0	0-2.5	2.5	2.5	2.5	5.0
E-E	4.5	2.5	2.5	2.5	0	5.0

IC454

Mode \ Pin No.	1	2	3	4	5	6	7	8	9	10
REC	5.0	0	5.0	5.0	2.2	0	0.1	0	0	2.5
PLAY	5.0	0	5.0	5.0	2.2	0	0.1	0	0	2.5
E-E	5.0	0	5.0	5.0	2.2	0	0	0	0	0

Mode \ Pin No.	11	12	13	14	15	16	17	18	19	20
REC	1.0-4.0	3.7	5.0	2.5	0	2.5	2.5	2.5	2.5	2.5
PLAY	1.0-4.0	3.7	5.0	2.5	0	2.5	2.5	2.5	2.5	2.5
E-E	2.5	5.0	5.0	2.5	0	2.5	2.5	2.5	2.5	2.5

Mode \ Pin No.	21	22	23	24	25	26	27	28
REC	2.6	1.5	0	3.0	3.0	5.0	2.4	1.9
PLAY	1.5	2.5	0	2.5	2.5	5.0	2.4	1.9
E-E	1.5	2.5	0	2.5	2.5	5.0	2.4	0

Q450

Mode \ Pin No.	E	C	B
REC	2.2	5.0	2.5
PLAY	2.2	5.0	2.5
E-E	2.2	5.0	2.5

PSV P.C. Board

IC601

Mode \ Pin No.	G	IN	OUT
REC	0	12.0	20.0
PLAY	0	12.0	20.0
E-E	0	12.0	20.0

IC602

G	IN	OUT
0	12.0	25.3
0	12.0	25.3
0	12.0	25.3

IC603

G	IN	OUT
0	18.0	25.3
0	18.0	25.3
0	18.0	25.3

IC951

Mode \ Pin No.	1	2	3	4	5	6	7	8	9
REC	12.0	5.3	0	1.9	5.4	5.4	0	5.5	12.0
PLAY	12.0	5.3	0	1.9	5.4	5.4	0	5.5	12.0
E-E	12.0	5.3	0	1.9	5.4	5.4	0	5.5	12.0

Q601

Mode \ Pin No.	E	C	B
REC	0	5.6	0.7
PLAY	0	5.6	0.7
E-E	0	5.6	0.7

Q603

E	C	B
12.0	11.9	11.2
12.0	11.9	11.2
12.0	11.9	11.2

Q604

E	C	B
0	0	0.7
0	0	0.7
0	0	0.7

Q951

Mode \ Pin No.	E	C	B
REC	0	0	0.7
PLAY	0	0	0.7
E-E	0	0	0.7

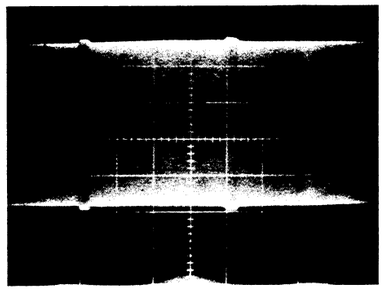
Q952

E	C	B
1.8	6.6	2.4
1.8	6.6	2.4
1.8	6.6	2.4

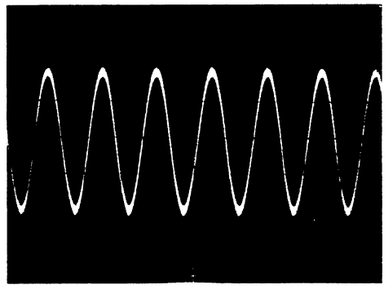
QR601

E	C	B
0	0.7	0
0	0.7	0
0	0.7	0

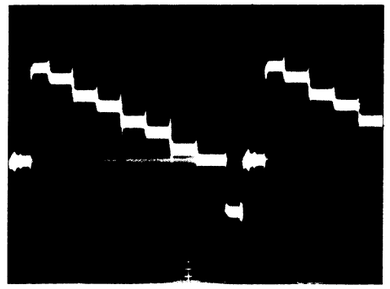
16. WAVE FORMS



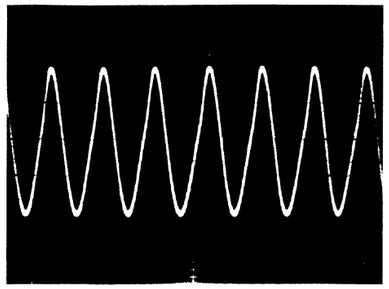
WF1 TP1 (REC CRR)
5mV/div x10
5mS/div
REC.Mode(Blank Tape)



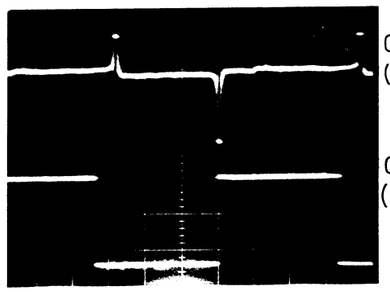
WF4 TP201-TP202
(BIAS+) (BIAS-)
5mV/div x10
10uS/div
REC.Mode(Blank Tape)



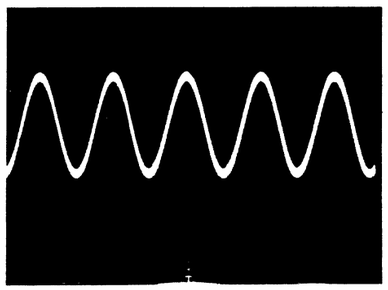
WF7 TP54(E-E)
10mV/div x10
10uS/div
STOP.Mode



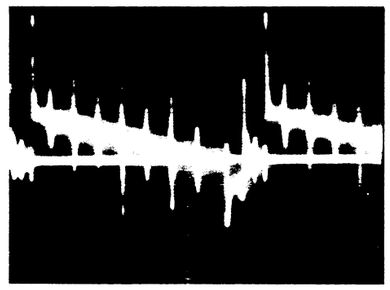
WF10 TP452 (3.58MHz)
50mV/div x10
0.2uS/div
REC.Mode(Blank Tape)



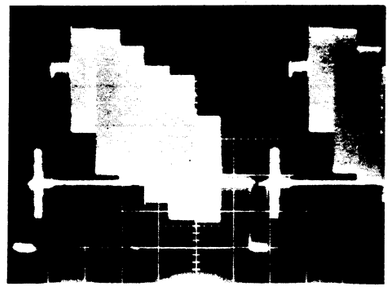
WF2 TP2 (RF-SW) TP451 (CTL)
0.2V/div x10 0.1V/div x10
5mS/div 5mS/div
PLAY.Mode(F8-A)



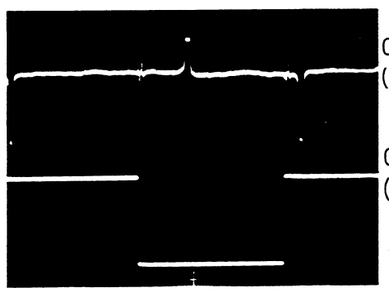
WF5 TP402 (A-OUT)
50mV/div x10
0.5mS/div
PLAY.Mode(F6-A)



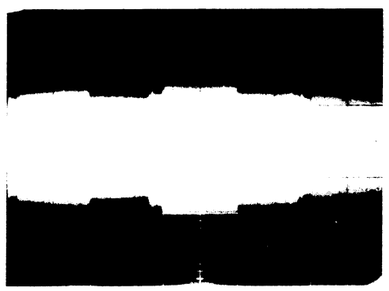
WF8 TP51 (W/D)
0.1V/div x10
10uS/div
REC.Mode(Blank Tape)



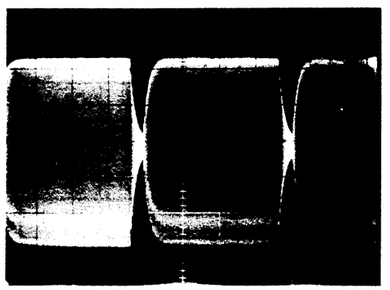
WF11 V-OUT
10mV/div x10
10uS/div
STOP.Mode



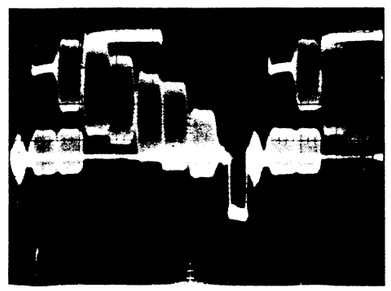
WF3 TP2 (RF-SW) TP401 (CTL)
0.2V/div 0.1V/div
5mS/div 5mS/div
PLAY.Mode(F6-A)



WF6 TP4 (ENV)
5mV/div x10
5mS/div
PLAY.Mode(F6-A)



WF9 TP181 (SECAM)
20mV/div x10
5mS/div
REC.Mode(Blank Tape)



WF12 V-OUT
20mV/div x10
10uS/div
PLAY.Mode(F6-A)

[TV SECTION] (VX-T1000MKIIAE/KE/SH MODEL)

PRACITICAL SERVICE FIGURE

* All measurements described under AIWA Measurement method and AIWA standard test tapes.
* Test input terminal . . . . . .Video input (1Vp-p)
. . . . . .Audio put (-10dBs)

<VCR>

Description	Condition	Unit	Nominal	Limit
++1. Horizontal resolution	F6M	Line	230	220
+2. Video S/N ratio	F6D	dB	43	38
+3. Audio S/N ratio	F6A	dB	41	38
4. Wow & Flutter WRMS/CCIR	F6L	%	0.3	0.5
5. Jitter	F6N	us	0.07	0.25
+6. Video S/N ratio	R/P	dB	43	38
++7. Audio S/N ratio	R/P	dB	41	37
8. Audio freq.resp. 100Hz	-20dBs in	dB	-3.6	+/-8
6KHz			+2.2	+/-8

<TUNER>

Description	Condition	Unit	Nominal	Limit
1. Channel	VHF Low	CH	2–4	
	VHF High	CH	5–12	
	UHF	CH	21–69	
2. Intermediate freq.	Picture	MHz	38.9	
Sound			33.4	
3. Video S/N	(10ch)	dB	44	38
4. Audio S/N (W/LPF)	(10ch)	dB	45	38

* All Item measured across 8ohm speaker output terminal.

<AUDIO>

Description	Condition	Unit	Nominal	Limit
1. Audio Max. output		W	0.9	0.7
2. Audio S/N (W/LPF)	500W	dBs	45	38
3. Audio distortion (W/LPF)	500W	%	3	5
4. Audio freq.response (W/LPF)	50W	100Hz dB	-3	-7
		8KHz dB	+2	-5

Description	Condition	Unit	Nominal	Limit
1. Deflection frequency	Horizontal (PAL/SECAM)	KHz	15.625	
	(NTSC)		15.734	
	Vertical (PAL/SECAM)	Hz	50	
	(NTSC)		60	
2. Over scan	Horizontal	%	90	
3. Linearity	Horizontal	%		10
	Vertical	%		7
4. High voltage		KV	22	

* No. 2–4 Item are community PAL/SECAM/NTSC.

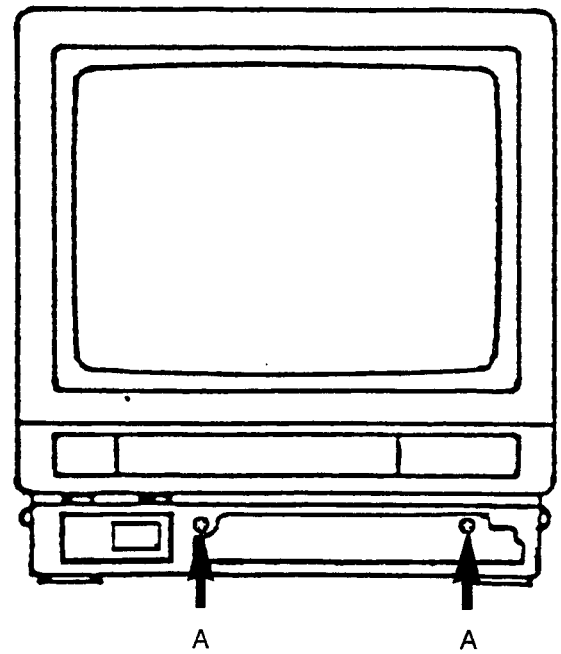
<VIDEO/CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center	m/m		0.3
	Corner		1.5	
	Side		1.2	
++2. Contrast control range		dB	6	4
3. Brightness	APL100%	ft-L	55	40
4. Color temperature		°K	8500	
++5. Resolution Horizontal	Line	300	280	
	Vertical		300	270

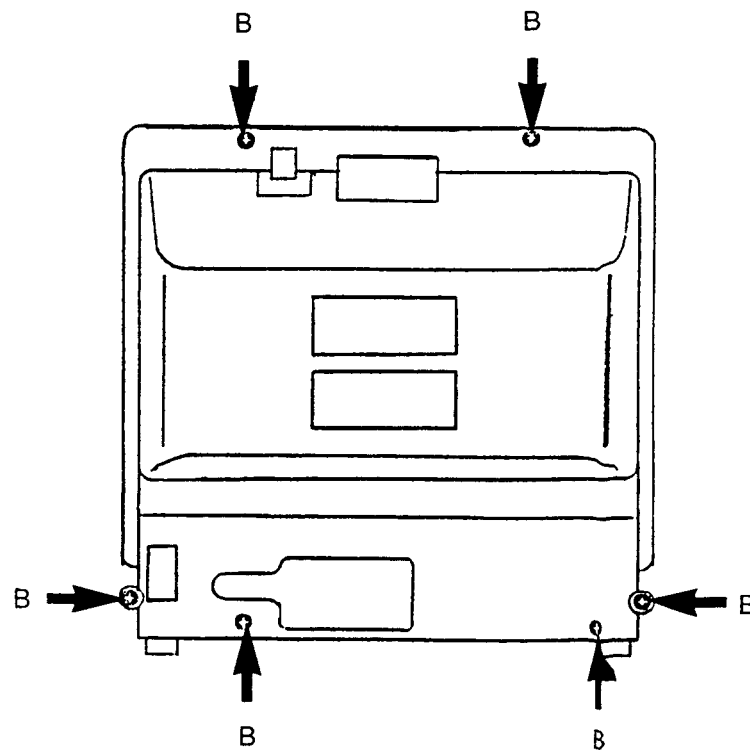
1. DISASSEMBLY INSTRUCTIONS (SET)

TV Cabinet removal

• Remove 2 screws (A) from front cabinet.

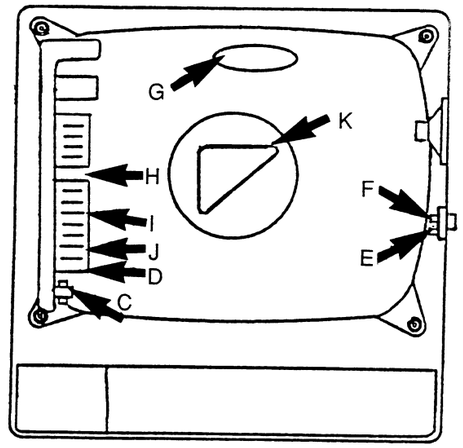


• Remove 6 screws (B) from rear cabinet.



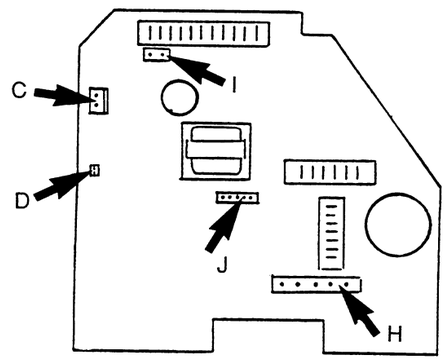
VIDEO Deck removal

• Remove connectors (C,D,E and F).



CRT PCB and Main PCB removal

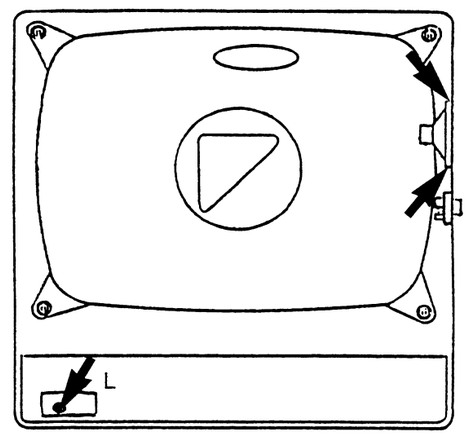
• Remove connectors (G,H,I,J and K) with Holder.



MAIN PCB

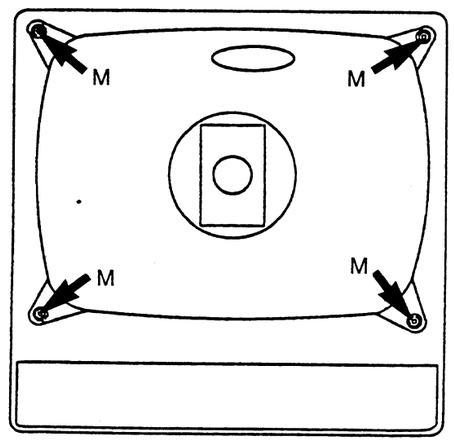
Earphone jack and Speaker removal

• Remove a screw (L) of Cotrol PCB.

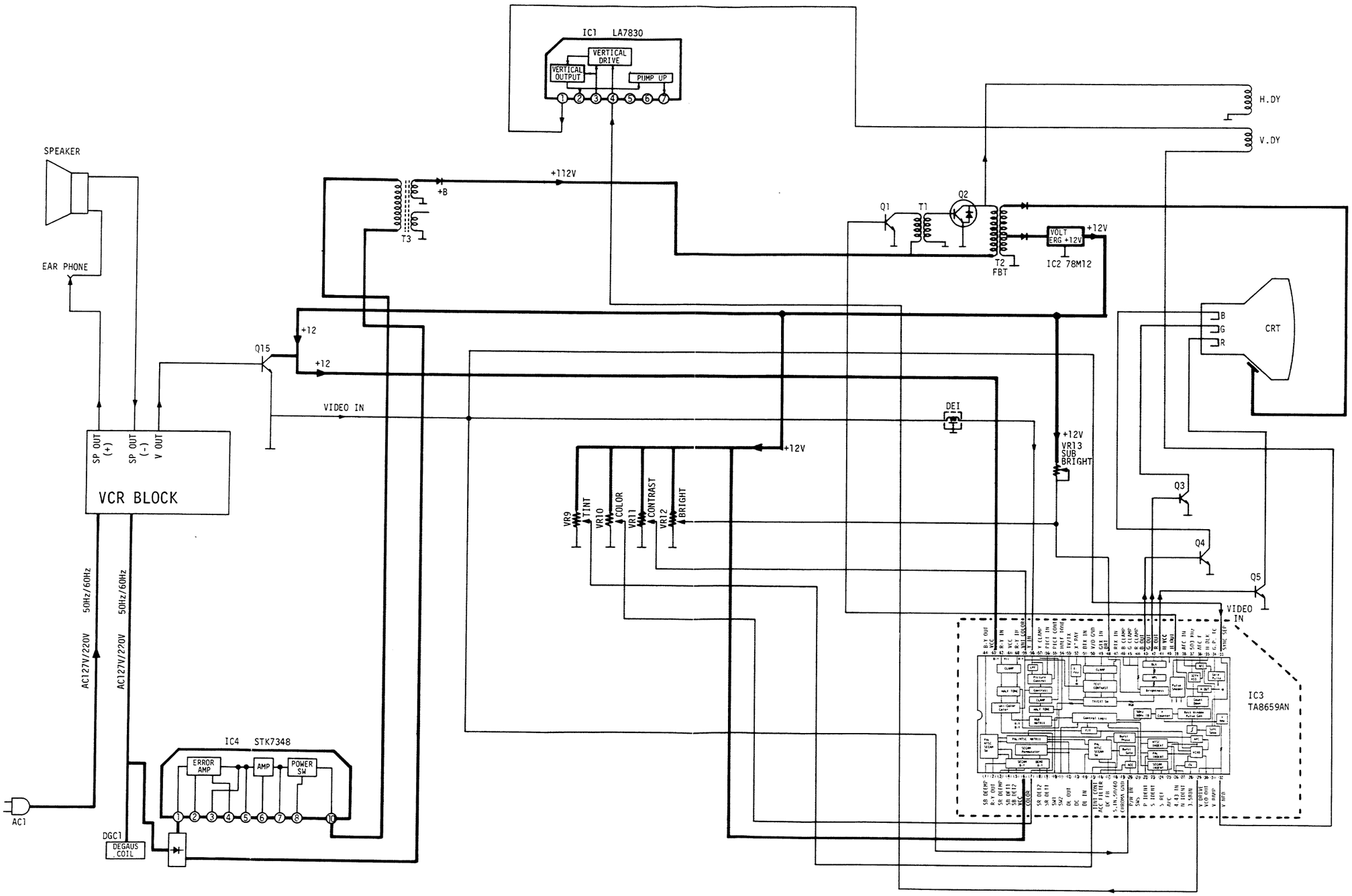


CRT removal

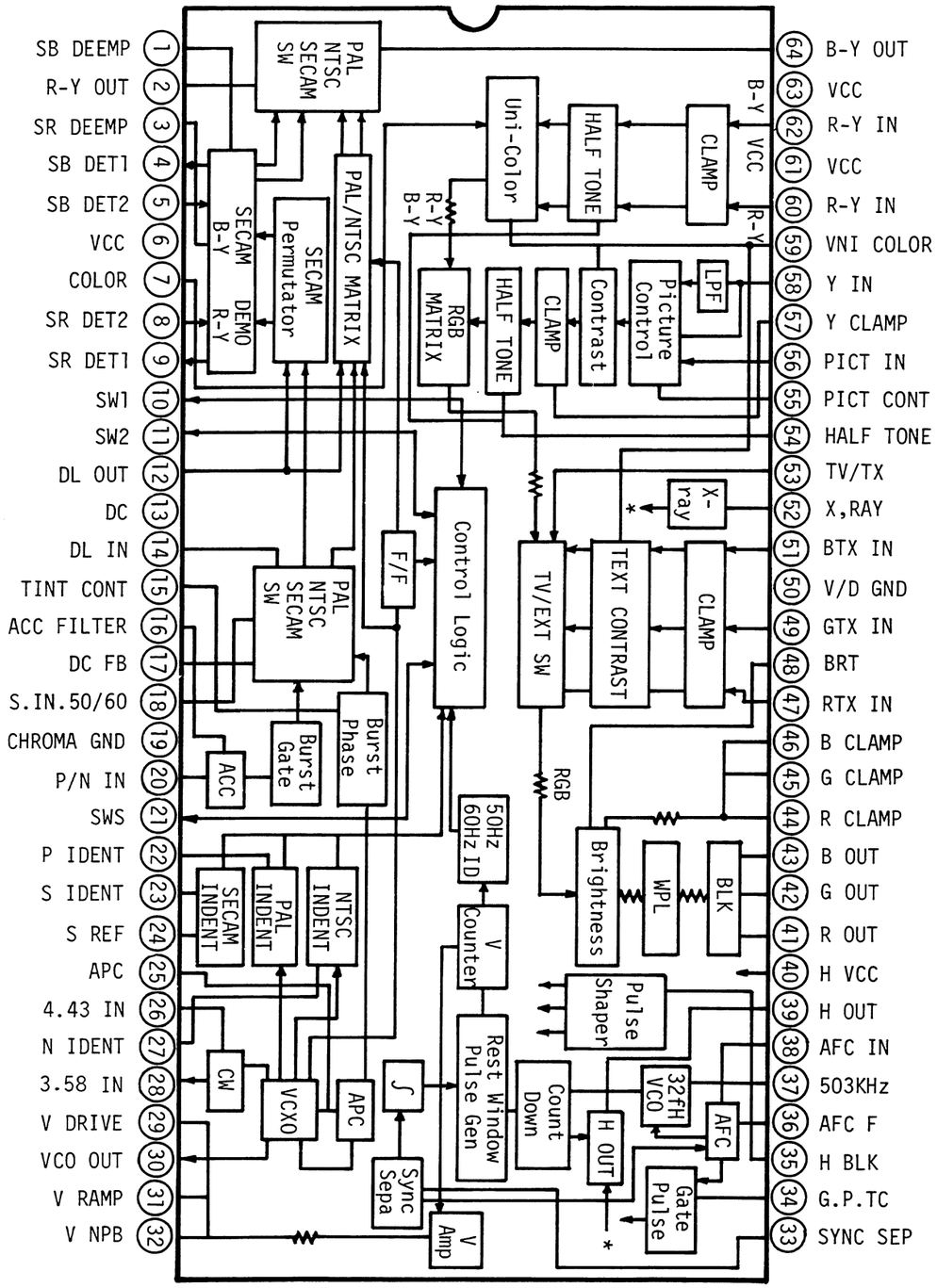
• Remove 4 screws (M).



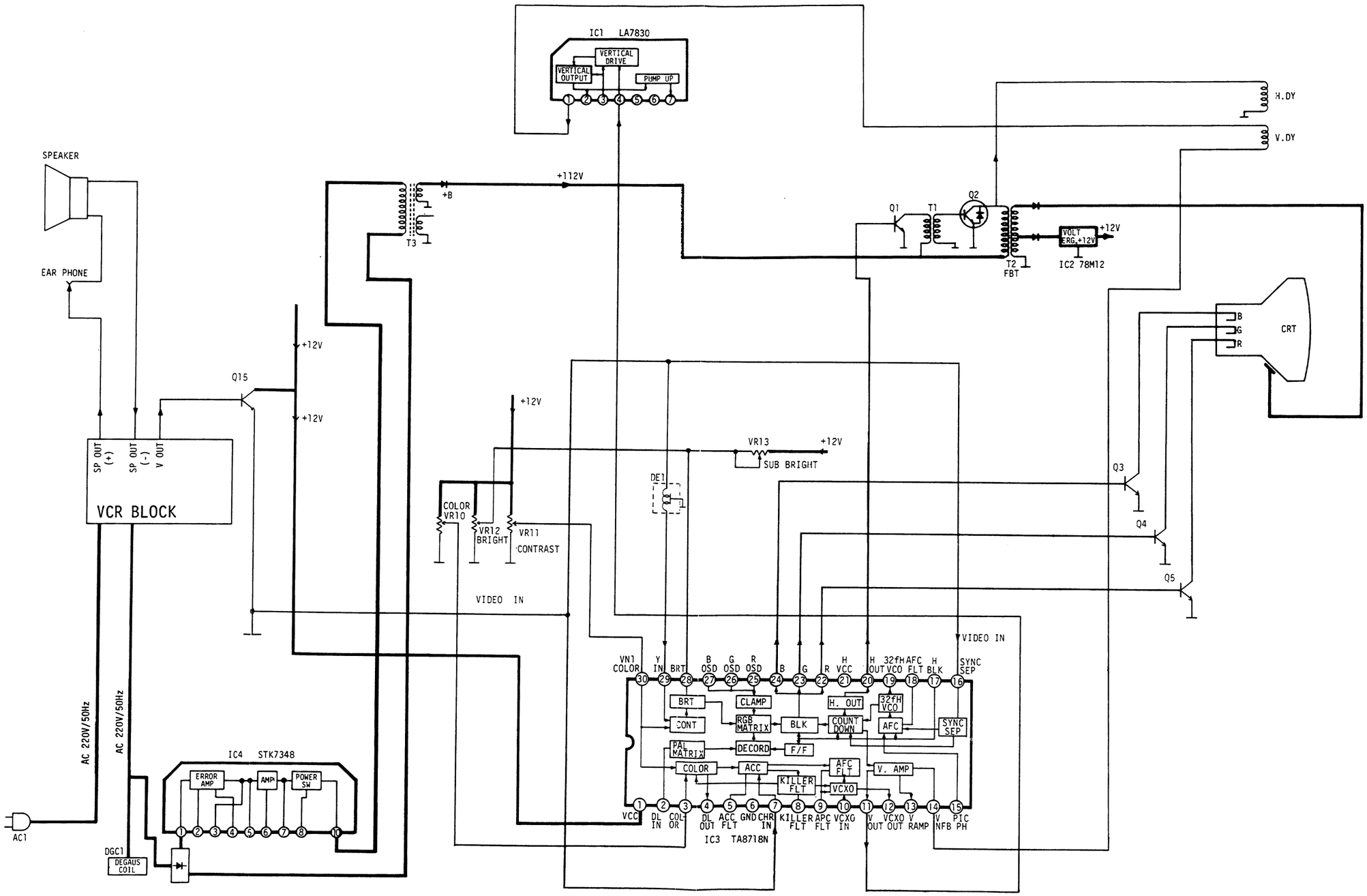
2. BLOCK DIAGRAM (VX-T1000MKIISH/KE MODEL)



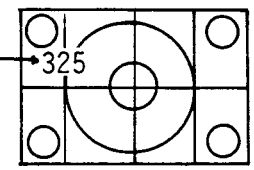
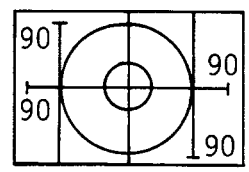
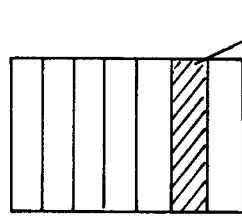
IC3 TA8659AN



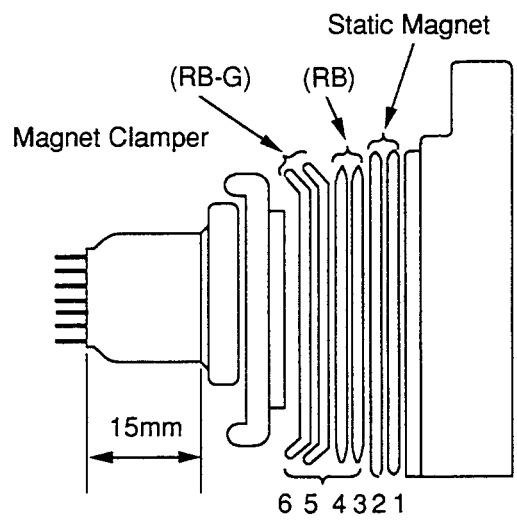
BLOCK DIAGRAM (VX-T1000MKIIAE MODEL)

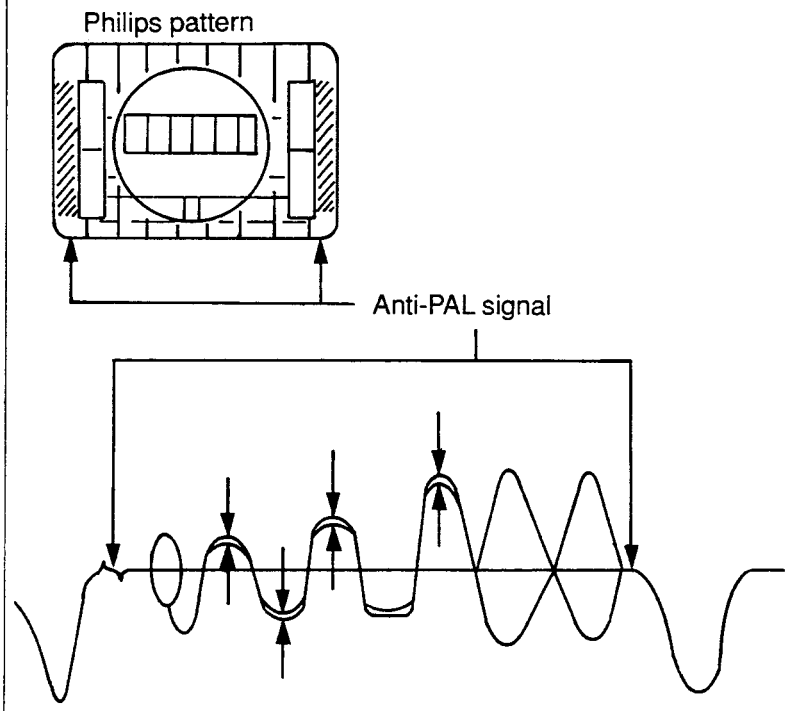


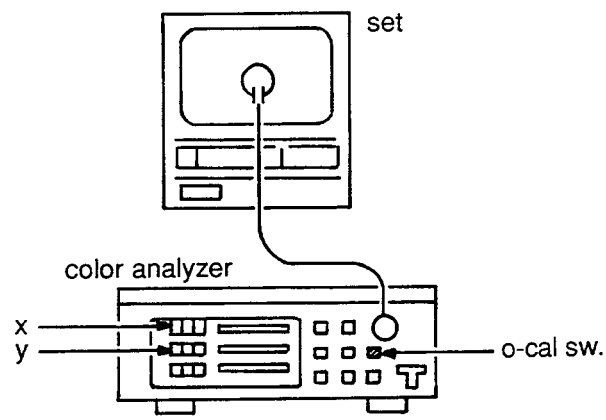
3. ELECTRICAL ADJUSTMENT

Alignment Item	Alignment Points	Alignment Method
1. Focus	FOCUS VR.	1. Input monoscope-pattern. 2. Align the focus while using the figure 325 (indicating number of the resolution) at the upper left of the monoscope pattern as reference, and check to ensure that no fading is detected in the center and all four corners. (Set the CONTRAST/BRIGHT CONTROL to center.) Align the focus with this figure serving as a standard. 
2. Cut Off	VR1, VR3, VR5 SCREEN VR.	1. Input APL 100% white. 2. See the SCREEN (counter clockwise) min, and set VR1, VR3, VR5 to center. 3. Turn the Service switch ON. 4. Adjust the SCREEN to a point where the horizontal GREEN line starts flashing. 5. Adjust VR1 (blue) VR3 (green) and VR5 (red) till the horizontal line turn white. 6. Turn the service switch OFF. **Note:** At this time, each VOL. of R.DRIVE (VR2) and B.DRIVE (VR4) should be in center.
3. V.size	VR8	1. Input monoscope pattern. 2. Adjust VR8 so that the monoscope V.SIZE display becomes 90%. Align horizontal/vertical balance, and then adjust so that the circle in the monoscope pattern center becomes truly round. 
4. Sub Bright	VR13	1. Input the gray scale. 2. Set CONT.BRIGHT to center. 3. Adjust VR13 to a point where the level one step higher than the black level starts flashing. 

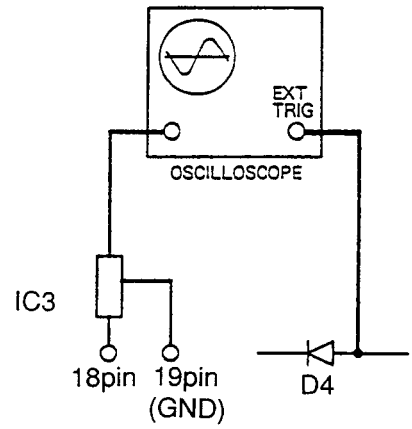
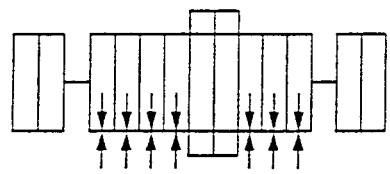
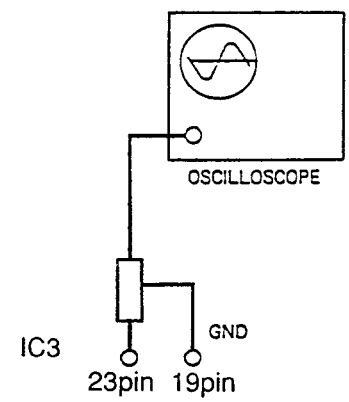
Note: The COLOR/CONTRAST/BRIGHT CONTROL, unless otherwise specified, should all be set to center (center click).

Alignment item	Alignment Points	Alignment Method
5. Color Purity	Defrection Yoke Purity Magnet	1. Set the unit facing west. 2. Operate the unit over 30 minutes before adjustment. 3. Fully degauss the unit using an external degaussing coil. 4. Inject a crosshatch signal and adjust the convergence control. 5. Inject a red color signal. 6. Loosen a screw of the Defrection Toke Clumper and pull the Deflection back away from the screen. 7. Adjust the Purity Magnets so that a red field is obtained at the center of the screen. 8. Slowly push the Deflection Yoke toward bell of CRT and set it where a uniform red field is obtained. 9. Tighten the clamp screw of the Deflection Yoke.
6. Convergence	(R,B) Static Convergence (RB-G) Static Convergence, Defrection Yoke	1. Loosen the Convergence Magnet Clamper and align red with blue dots at the center of the screen by rotating (R,B) Static Convergence Magnets. 2. Align red/blue with green dots at the center of the screen by rotating (RB-G) Static Convergence Magnet. 3. Fix the Convergence Magnets by tightening the clamper. 4. Remove the DY wedges and slightly tilt the Defrection Yoke horizontally and vertically to obtain the best overall convergence. 5. Fix the Defrection Yoke fitting by wedges. 

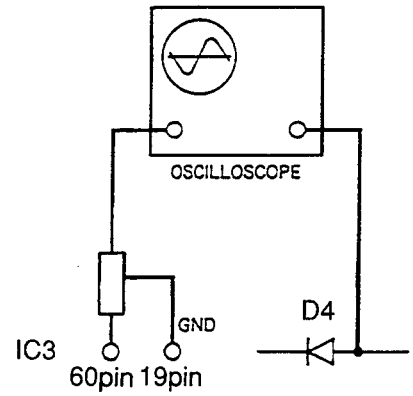
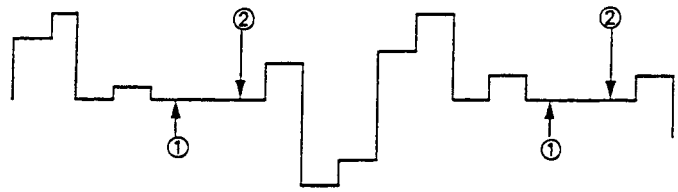
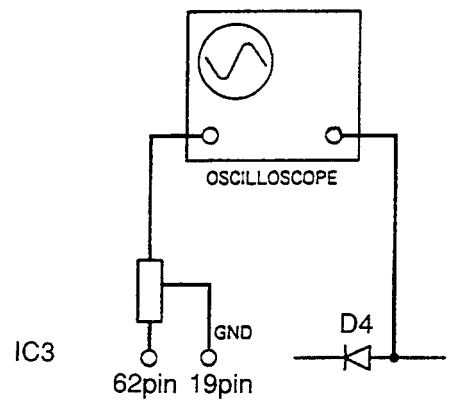
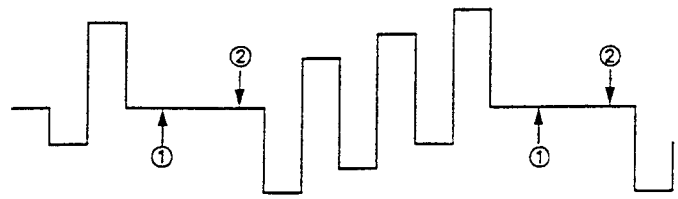
Alignment Item	Alignment Points	Alignment Method
7. 1H delay line	VR9, L8	1. Input the Philips pattern. 2. Connect the oscilloscope to IC3 pin 24 (or Synchronize the oscillocope externally through the D13 anode.) 3. Adjust VR9, L8 so that the amplitude at Anmti-PAL signal part becomes minimal (no color) and the waveform at the color bar part is not seen in double ("Venetian Blind" does not appear at the color bar signal part). 

Alignment Item	Alignment Points	Alignment Method
8. White Balance	VR5 VR2 VR1,VR3,VR4	1. Input APL 100% white. 2. After aging for 20-30 minutes, demagnetize the tube (CRT) surface with a demagnetizer. 3. Set the color analyzer to the CHROMA mode, and after zero point calibration, bring the optical receptor into close contact with the center on the tube surface (CRT), and adjust R.DRIVE (VR5) and B.DRIVE (VR3) so that the respective chroma temperatures become 8,500°K (X:0.290/Y:0.300). 4. Turn the service switch ON. 5. At this time, check that the horizontal line is white. If the horizontal line is not white, adjust the CUT-OFF VR, VR1 (blue), VR4 (red) until proper alignment is reached. 6. Turn the service switch OFF, and using the color analyzer, check that the chroma temperatures read the preset values. 7. Repeat steps 3, 4, 5, 6 above, and adjust so that the settings of chroma temperature and horizontal line are at their best.  **Note 1:** Be sure the tube surface faces east. **Note 2:** Make this adjustment under European magnetic field. (Vertical : 0.44G/Horizontal : 0.18G) Make this adjustment under Australia magnetic field. (Vertical : 0.50G/Horizontal : 0.30G) **Note 3:** Always adjust SUB-BRIGHT, V-SIZE, OUT-OFF, and PAL. **Note 4:** The allowable range during chroma temperature adjustment should be ±5% Max. x: 0.275 to 0.305 y: 0.285 to 0.315

PAL/SECAM MODE ONLY

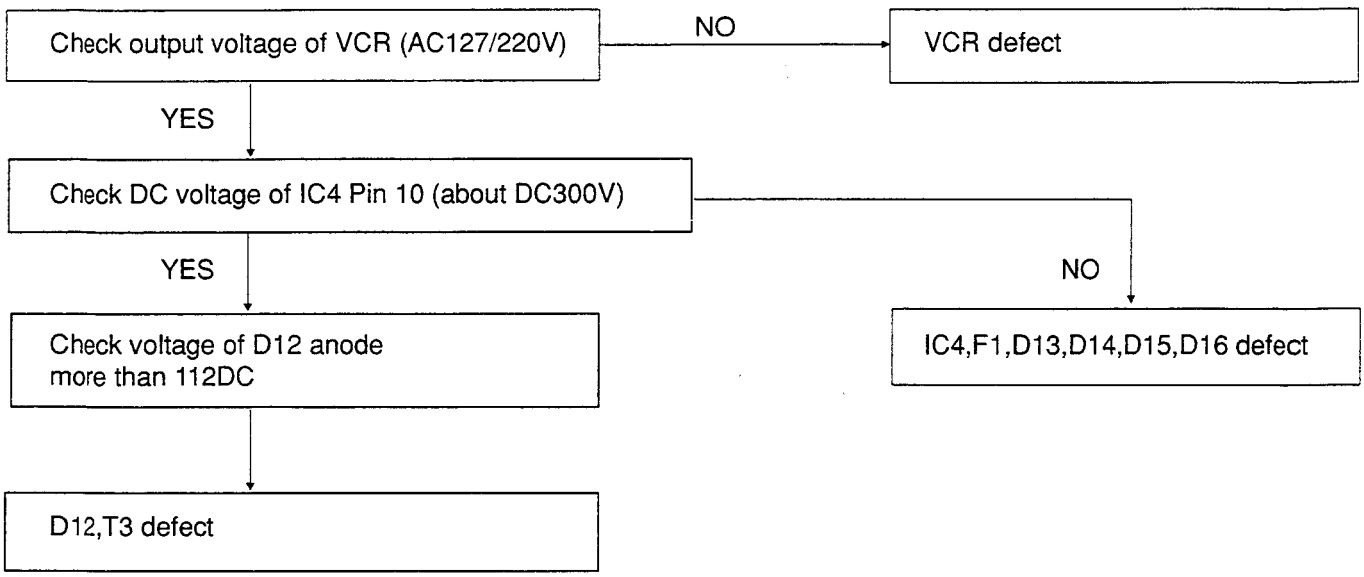
Alignment Item	Alignment Points	Alignment Method
9. SECAM Chroma Bell Filter	L10	1. Input the SECAM color bar signal. 2. Turn the CONTRAST, BRIGHT, COLOR control to max. 3. Connect the oscilloscope as foloowing drawing.  4. Adjust L10 with core driver to flat wave form at arrow marked on following drawing. 
10. IDENT Coil	L12	1. Input the SECAM color bar signal. 2. Turn the CONTRAST, BRIGHT, COLOR control to max. 3. Connect the oscilloscope as following drawing.  4. Adjust L12 with core driver to peak DC voltage.

PAL/SECAM MODE ONLY

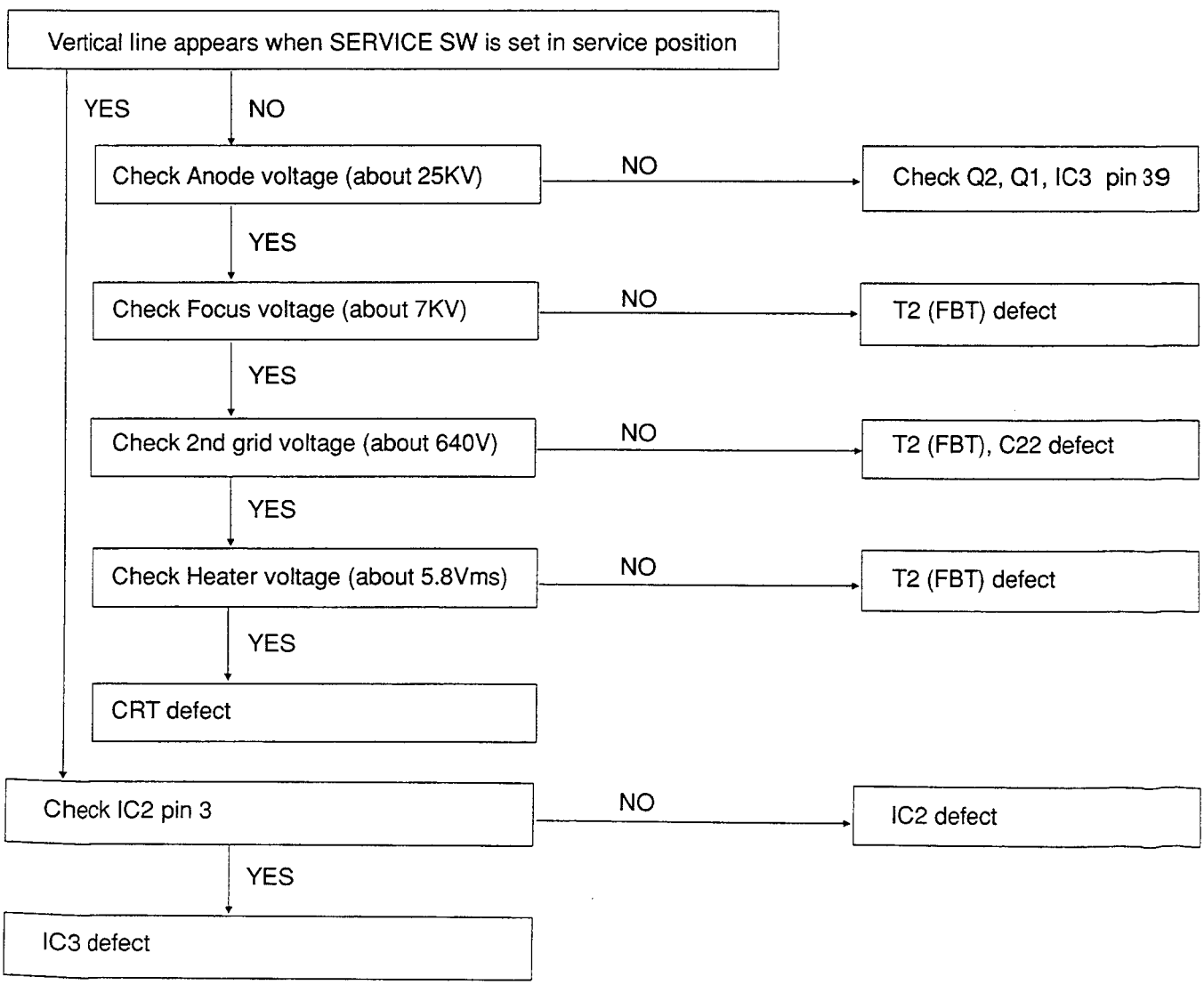
Alignment Item	Alignment Points	Alignment Method
11. R-Y Demodulate Coil	L7	1. Input the SECAM color bar signal. 2. Turn the CONTRAST, BRIGHT, COLOR control to max. 3. Connect the oscilloscope as following drawing.  4. Adjust L7 with core driver to meet same level with á(blanking) and í(white) as following drawing. 
12. B-Y Demodulate Coil	L6	1. Input the SECAM color bar signal. 2. Turn the CONTRAST, BRIGHT, COLOR control to max. 3. Connect the oscilloscope as following drawing.  4. Adjust L6 with core driver to meet same level with á(blanking) and í(white) as following drawing. 

4. TROUBLE SHOOTING GUIDES

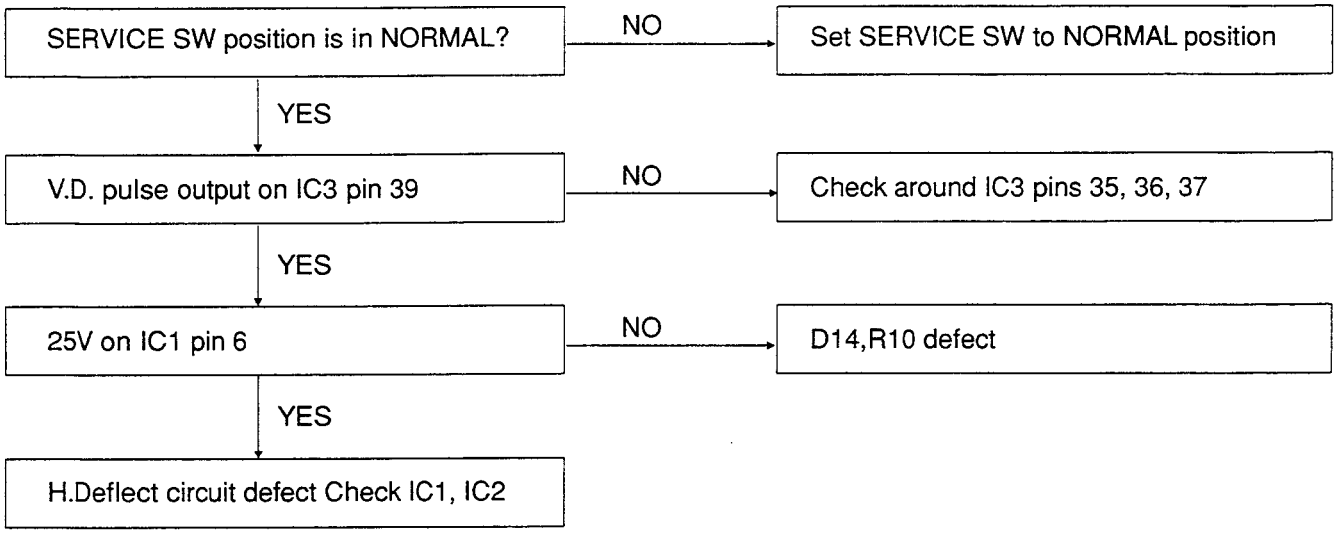
(1) NO POWER OUTPUT



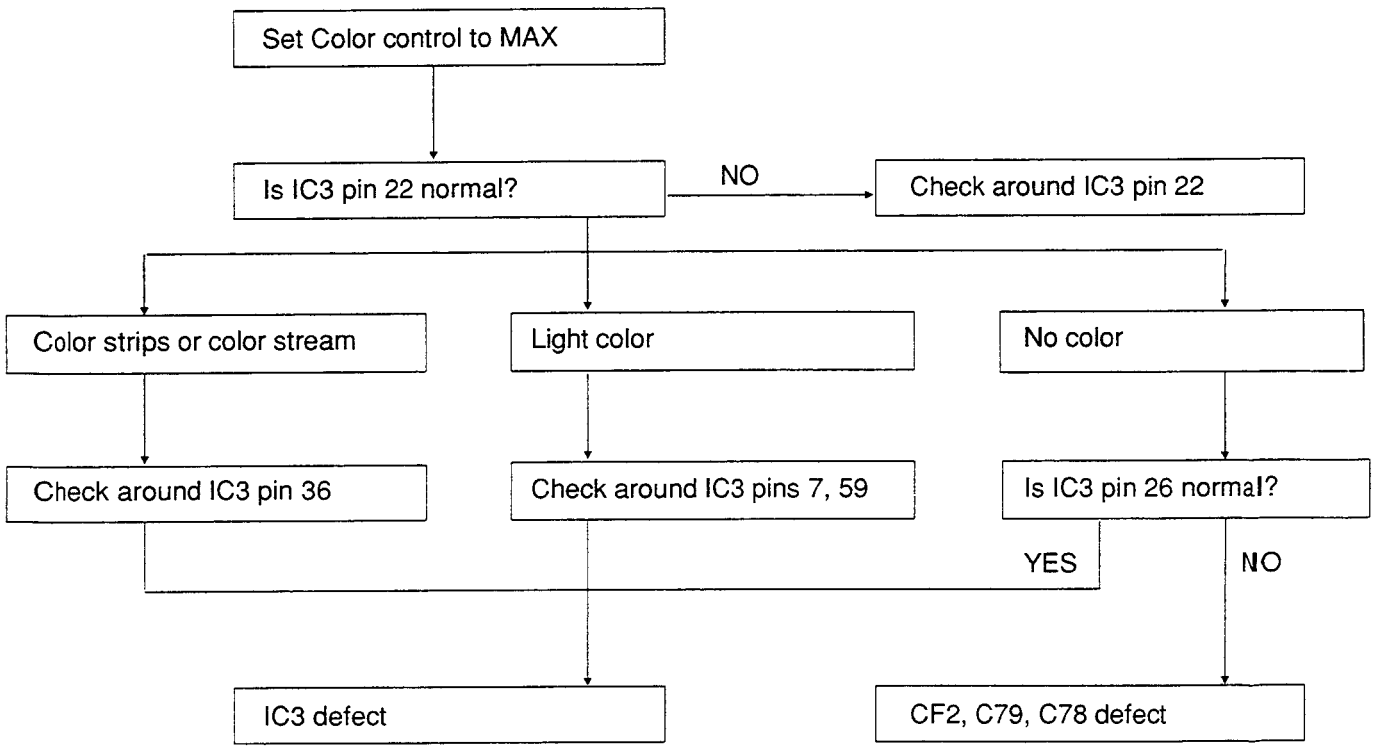
(2) NO RASTER WITH SOUND



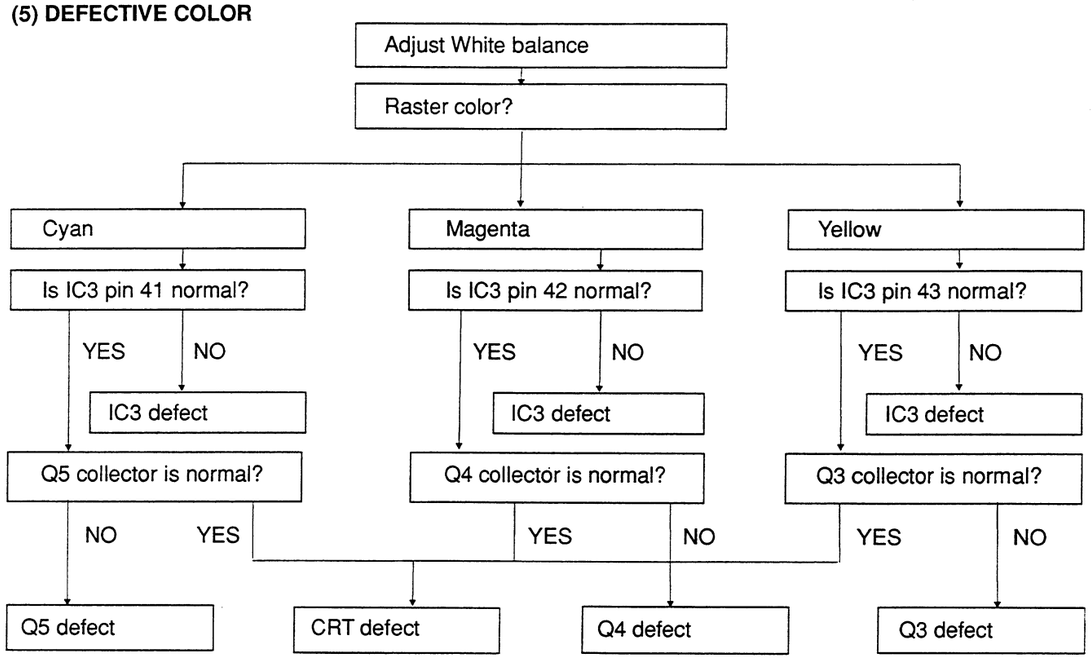
(3) NO HORIZ DEFLECT (ONLY V LINE)



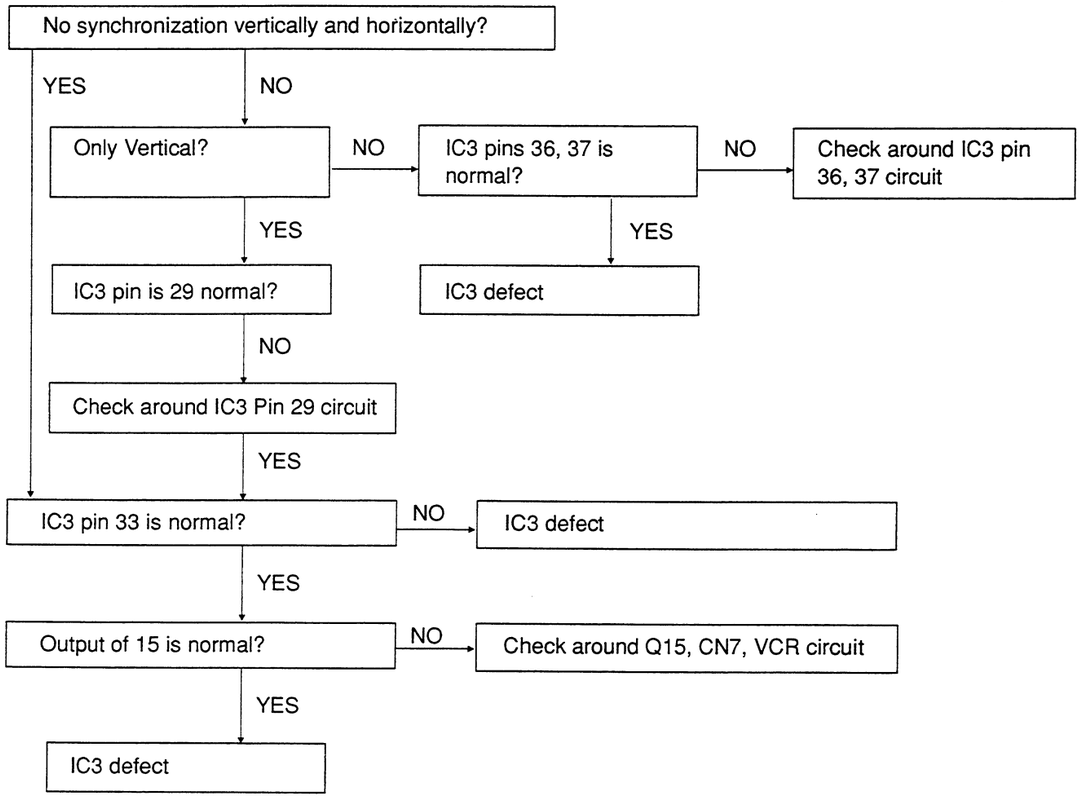
(4) NO COLOR



(5) DEFECTIVE COLOR



(6) NO SYNCHRONIZATION



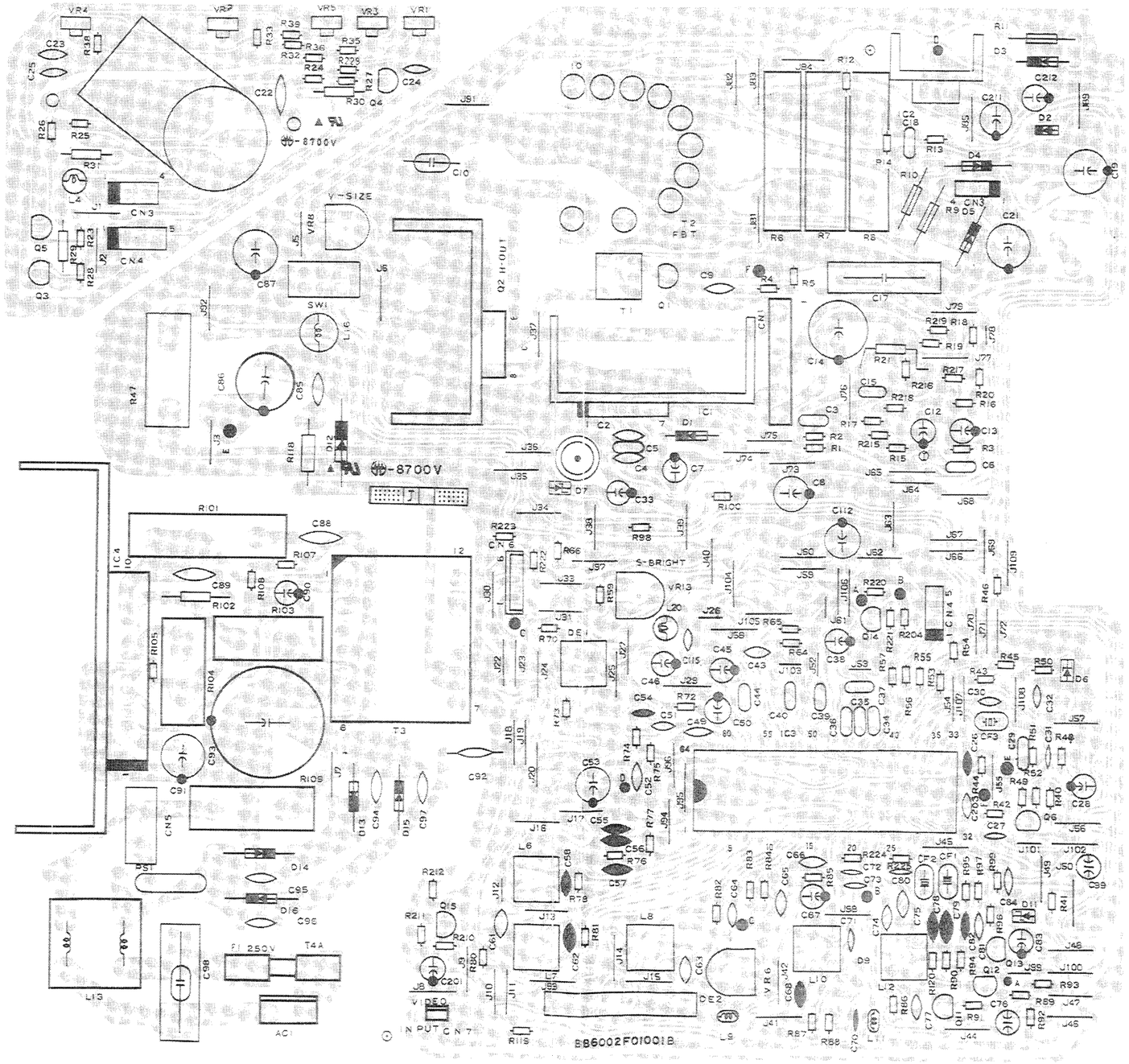
5. P.C.BOARD TOP AND BOTTOM VIEWS (VX-T1000MKIISH/KE MODEL)

MAIN PCB TOP VIEW

- Resistor
- Ceramic Cap
- Ceramic Cap(NPO)
- Electrolytic Cap
- Electrolytic Cap(NP)
- Transistor
- Micro Inductor
- Diode
- Mylar Cap

CRT PCB

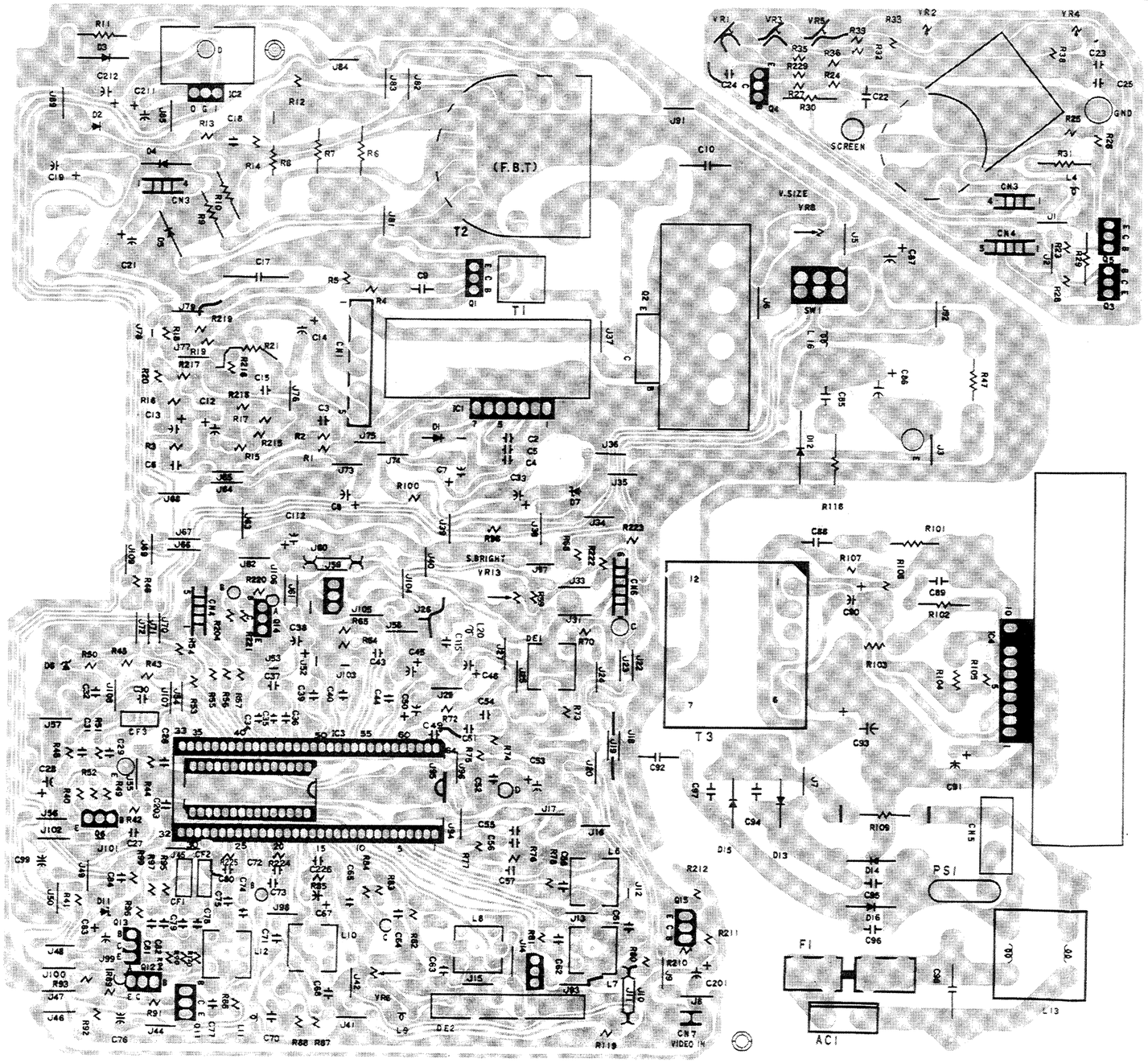
MAIN PCB



MAIN PCB BOTTOM VIEW

MAIN PCB

CRT PCB



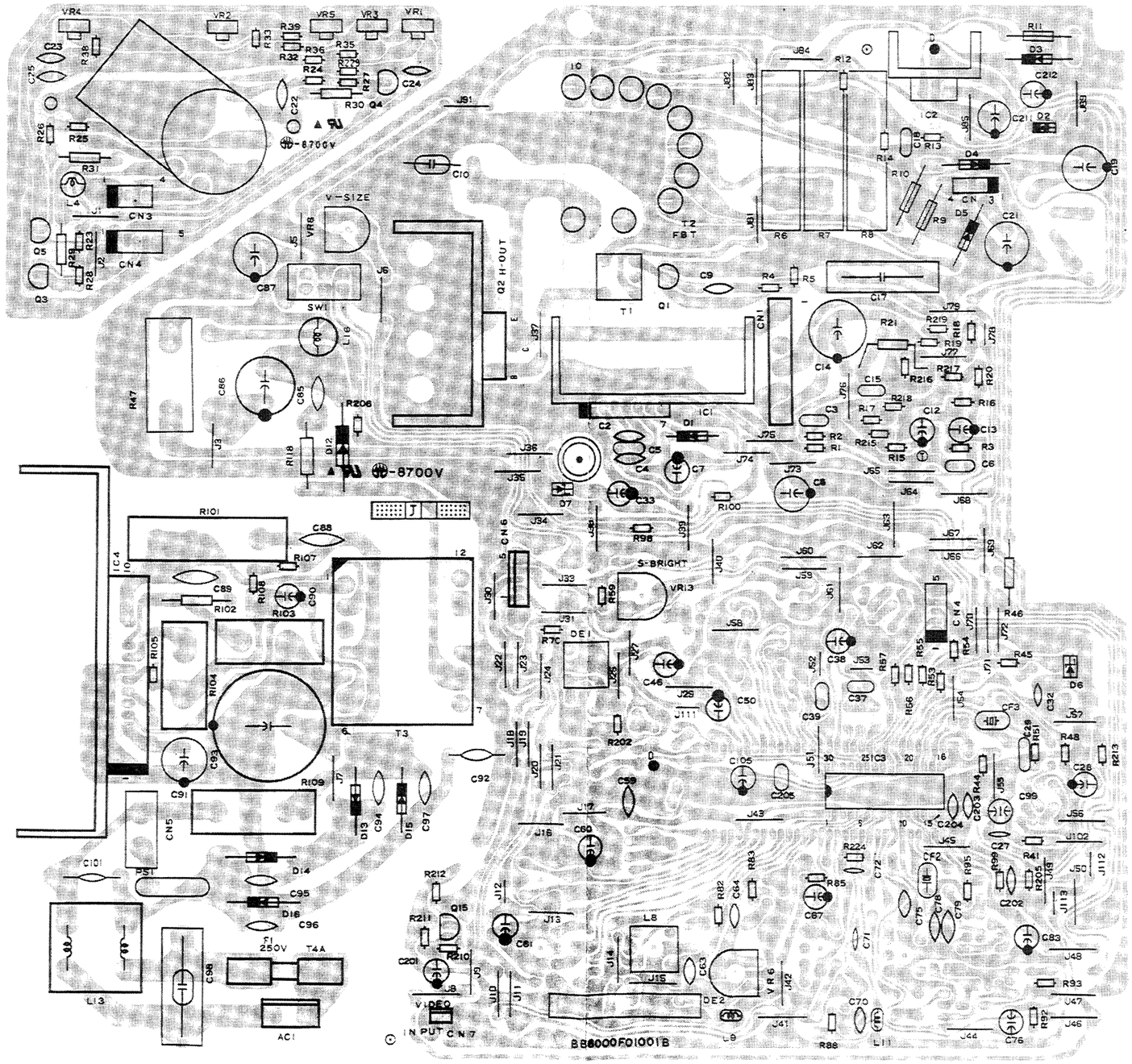
B6205/09

P.C.BOARD TOP AND BOTTOM VIEWS (VX-T1000MKIIAE MODEL)

MAIN PCB TOP VIEW

CRT PCB

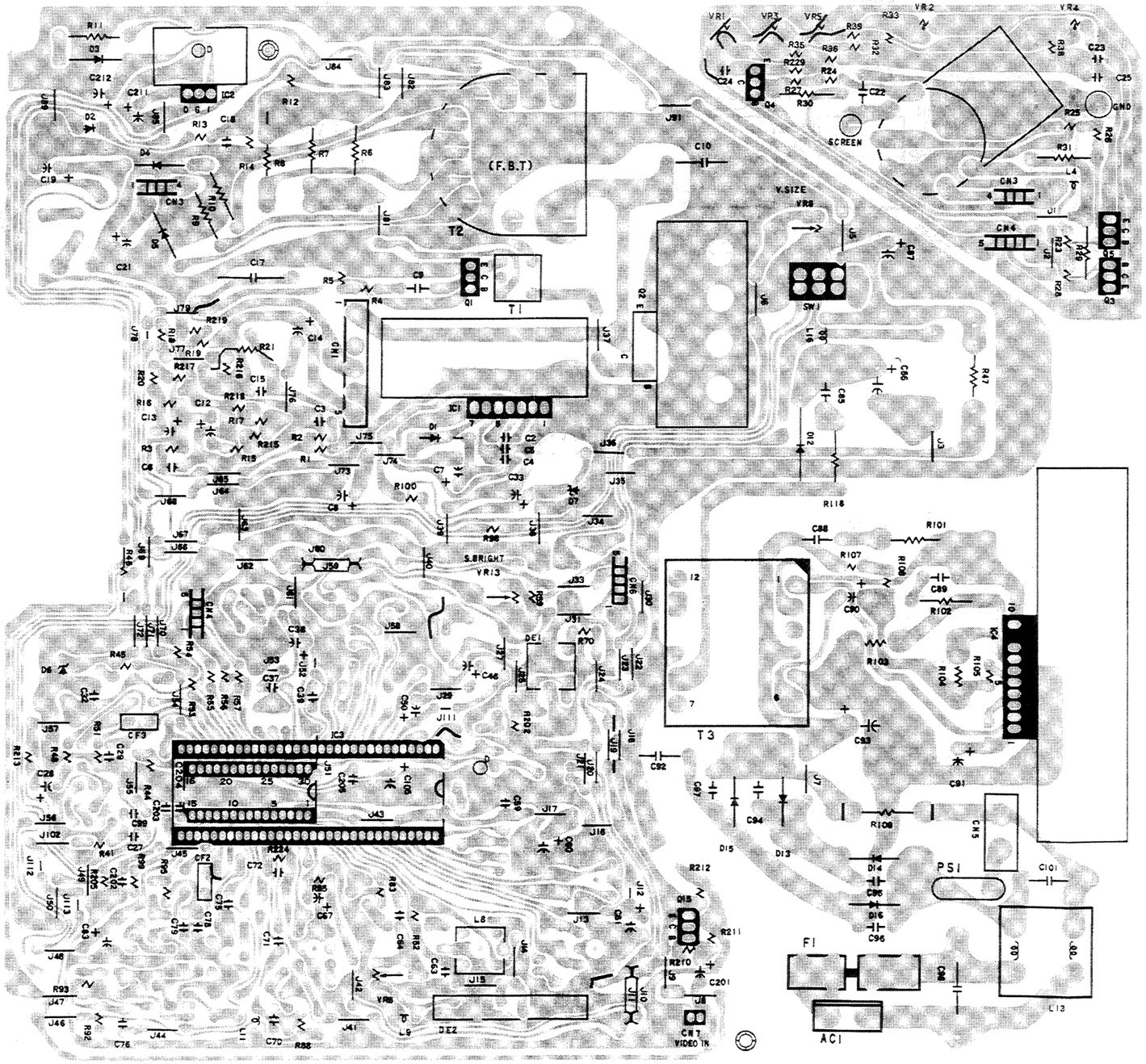
MAIN PCB



MAIN PCB BOTTOM VIEW

MAIN PCB

CRT PCB

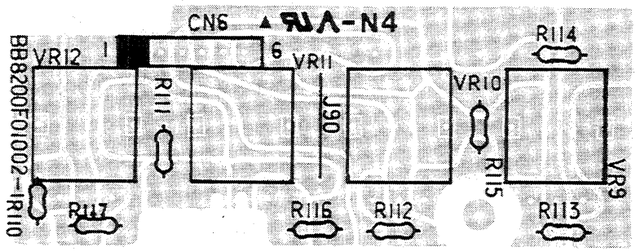


B6216

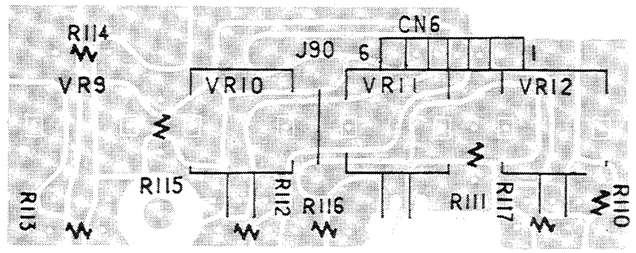
(VX-T1000MKIIAE/KE/SH MODEL)

CONTROL PCB

TOP VIEW

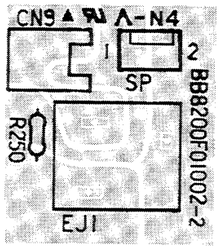


BOTTOM VIEW

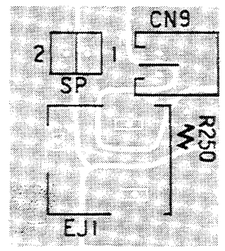


EARPHONE PCB

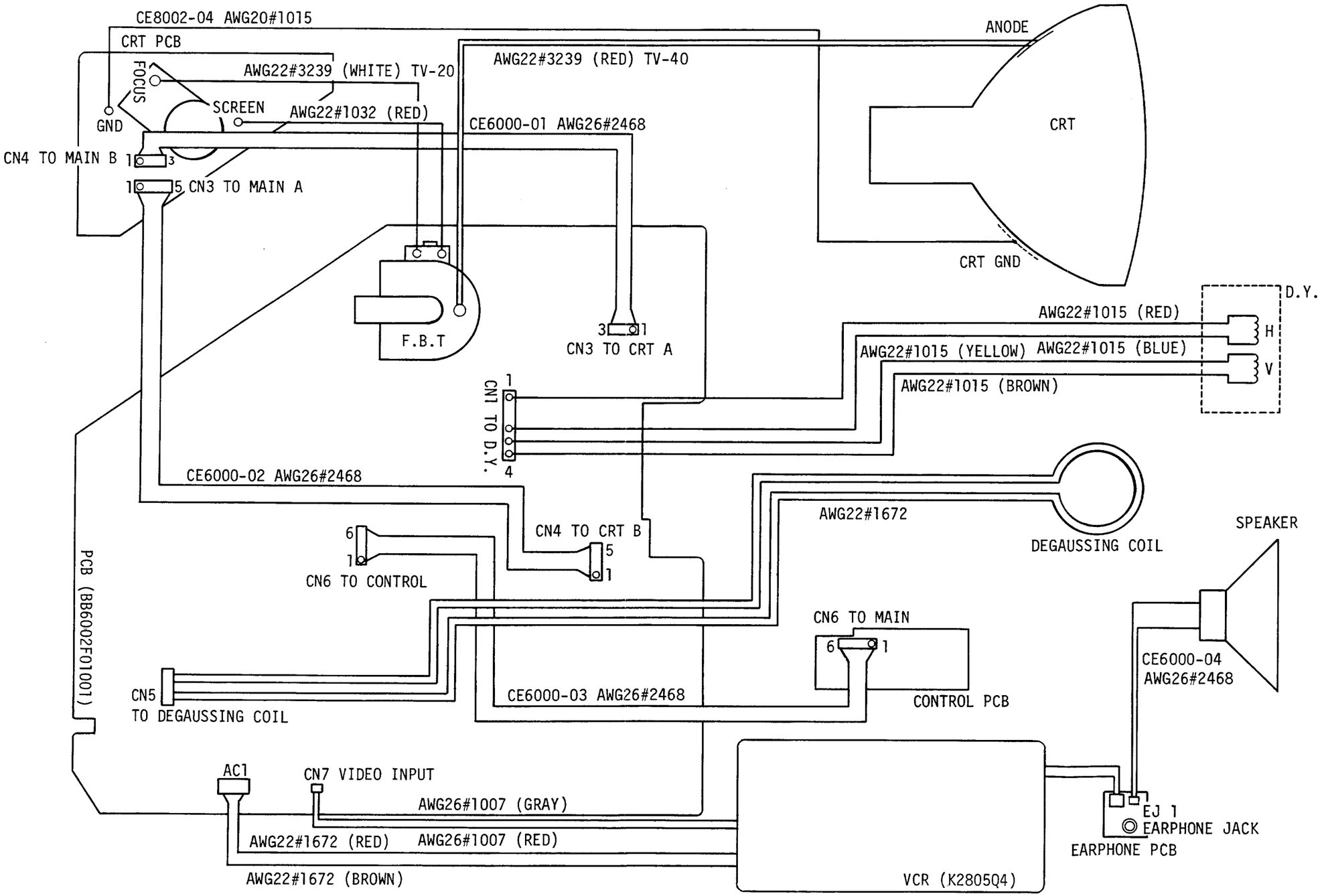
TOP VIEW



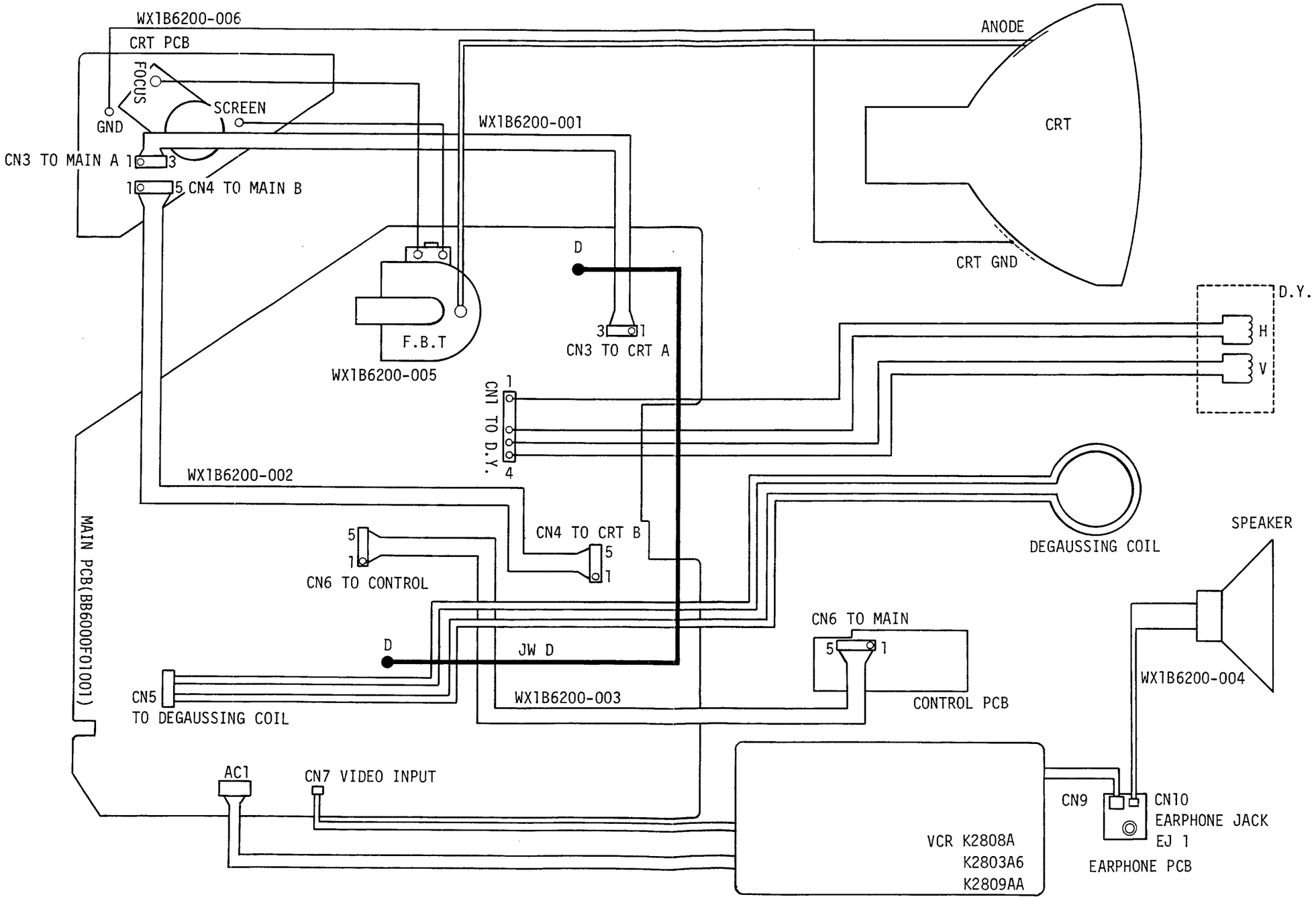
BOTTOM VIEW



6. WIRING DIAGRAM (VX-T1000MKIISH/KE MODEL)



WIRING DIAGRAM (VX-T1000MKIIAE MODEL)



7. VOLTAGE CHARTS

	IC1	IC2	IC3						IC4
	LA7830	L78M12	TA8659AN						STK7348
1	0	16.0	1	8.5	31	6.4	61	11.8	40.1
2	11.3	0	2	7.7	32	6.4	62	6.1	0
3	22.7	11.8	3	8.5	33	6.9	63	11.8	NC
4	0.9		4	6.5	34	3.2	64	7.8	33.2
5	0.7		5	6.5	35	0.7			-1.1
6	22.4		6	11.8	36	7.3			0
7	1.3		7	3.3	37	3.1			-0.3
8			8	6.5	38	6.6			0.3
9			9	6.5	39	2.7			NC
10			10	5.9	40	8.8			301.0
11			11	0.8	41	3.5			
12	12	5.2	42	3.6					
13	13	5.2	43	3.6					
14	14	8.0	44	3.0					
15	15	5.9	45	3.1					
16	16	10.3	46	3.0					
17	17	3.4	47	6.7					
18	18	4.5	48	2.9					
19	19	0	49	6.9					
20	20	5.7	50	0					
21	21	0	51	6.8					
22	22	11.2	52	0					
23	23	7.8	53	0					
24	24	5.7	54	0					
25	25	5.9	55	6.1					
26	26	3.2	56	3.2					
27	27	10.8	57	5.5					
28	28	3.2	58	4.7					
29	29	0.9	59	3.2					
30	30	9.0	60	6.1					

INPUT Signal	Full color bar
Brightness	Center
Contrast	Center
Volume	Center

TR No.	TR TYPE	E	C	B	REMARK
Q1	2SC2271	0	62.6	0.4	
Q2	2SD1397	0	82.4	-0.1	
Q3	2SC2228	3.0	117.9	3.6	
Q4	2SC2228	2.96	128.0	3.5	
Q5	2SC2228	3.0	111.1	3.5	
Q6	2SC1815	0.01	0.04	0.8	
Q8	2SC1815	0.5	11.8	1.1	
Q10	2SC1815	0	0.04	0.8	
Q11	2SA933	5.9	0	4.5	
Q12	2SA933	5.0	0	5.9	
Q13	2SC1815	0	6.2	0	
Q14	2SC3331	0	6.8	0	
Q15	2SC1815	5.1	11.8	5.6	

IC No.	T2	T3
PIN		115E475
1	83.3	AC 42.7
2	NC	301.2
3	107.6	NC
4	AC 6.1	2.6
5	107.8	0
6	3.5	AC 8.2
7	0	NC
8	7.4	AC 132.1
9	AC 35.5	0
10	AC 25.9	NC
11		NC
12		NC

VOLTAGE CHARTS

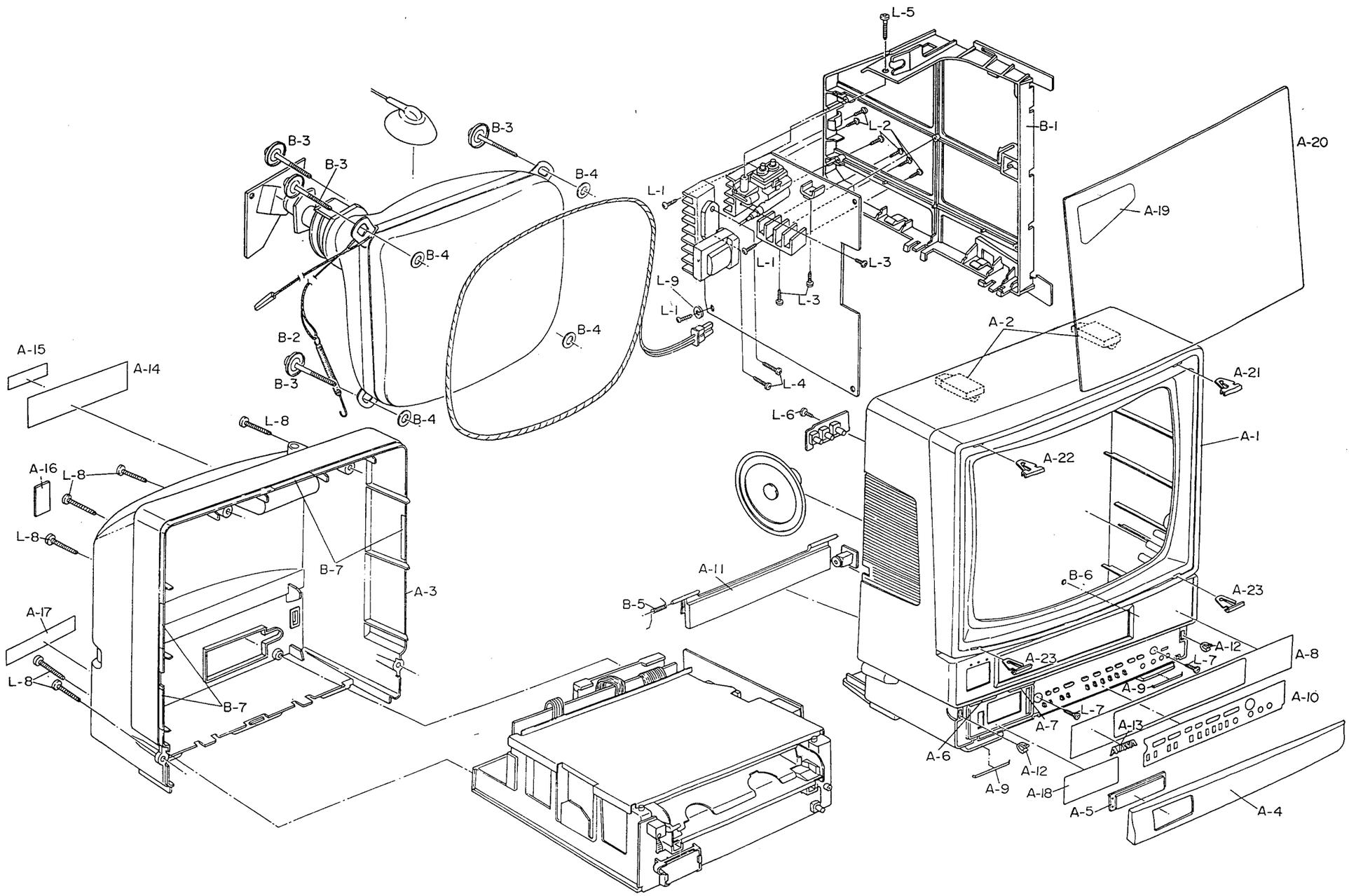
	IC1	IC2	IC3	IC4
	LA7830	L78M12	TA8718N	STK7348
1	0	16.0	11.9	40.0
2	11.4	0	11.2	0
3	23.8	11.8	3.2	NC
4	0.9		6.3	33.0
5	0.7		10.3	-1.1
6	23.6		0	0
7	1.3		3.7	-0.3
8			11.1	0.3
9			6.0	NC
10			3.2	300
11			0.9	
12			9.0	
13			6.4	
14			6.3	
15			7.5	
16			3.3	
17			0.7	
18			7.4	
19			5.6	
20			2.20	
21			8.8	
22			4.1	
23			.40	
24			3.7	
25			0	
26			10.4	
27			6.4	
28			3.2	
29			11.2	
30			11.9	

INPUT Signal	Full color bar
Brightness	Center
Contrast	Center
Volume	Center

TR No.	TR TYPE	E	C	B	REMARK
Q1	2SC2271	0	55.3	0.4	
Q2	2SD1397	0	75.4	1.0	
Q3	2SC2228	3.3	137.0	4.0	
Q4	2SC2228	3.5	148.0	4.0	
Q5	2SC2228	3.4	130.2	4.0	
Q15	2SC3331	5.2	11.9	5.8	

IC No.	T2	T3
PIN	1810951	115E475
1	75.4	AC 44.0
2	NC	301.2
3	112.8	NC
4	AC 6.4	2.9
5	112.8	0
6	4.2	AC 8.4
7	0	NC
8	8.3	AC 135.5
9	AC 38.2	0
10	AC 29.4	NC
11		NC
12		NC

EXPLODED VIEW (CABINET) (VX-T1000MKIIAE MODEL)



B6206

9. MECHANICAL PARTS LIST

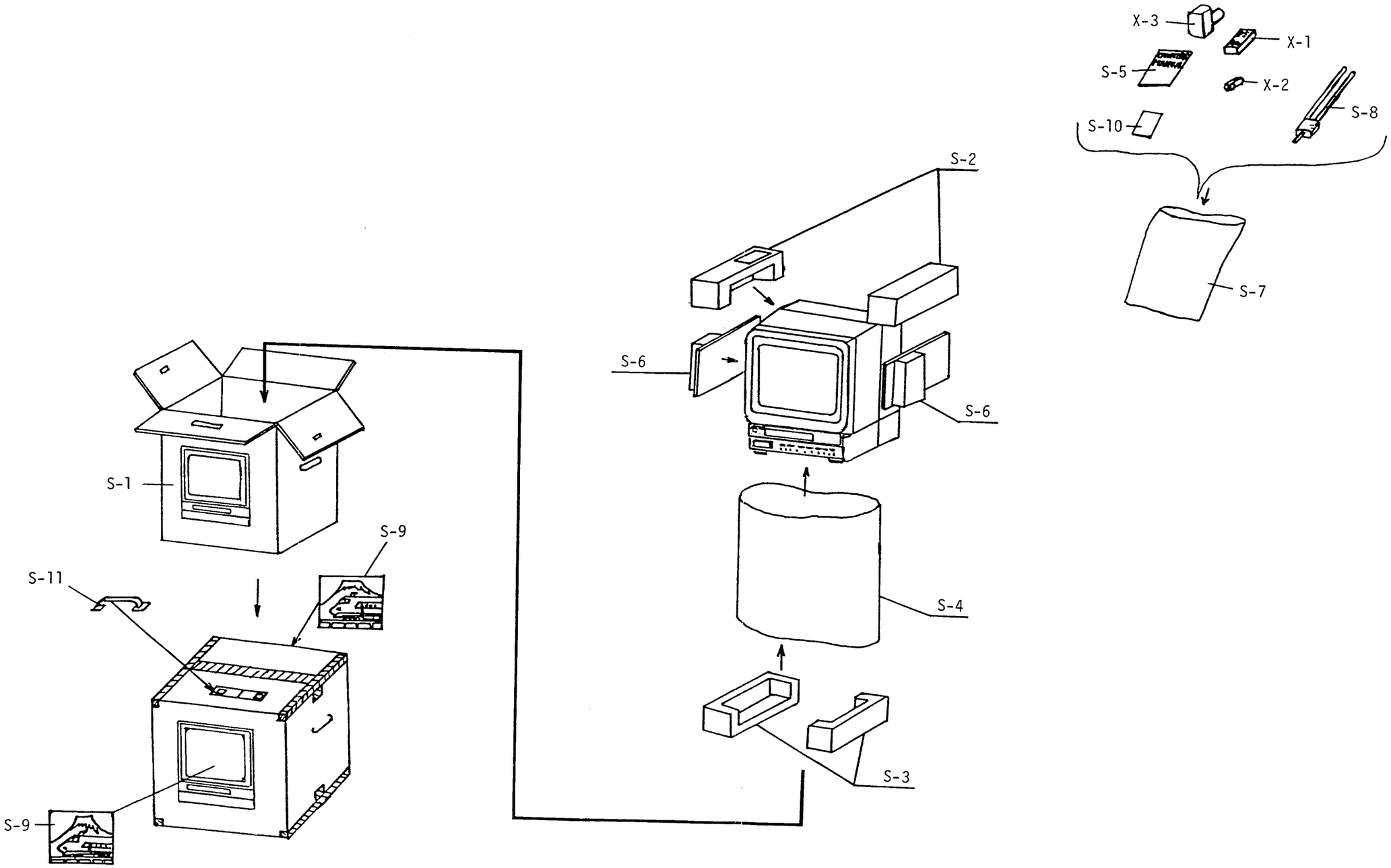
Ref. No.	Description	Parts No.
A-1	FRONT CABINET	S0-EM0-000-050
A-2	MOUNTING BOSS A	S0-EM4-000-770
A-3	REAR CABINET	S0-EM0-000-200
A-4	CONTROL DOOR	S0-EM2-000-160
A-5	TIMER WINDOW	S0-EM3-000-370
A-6	POWER KNOB	S0-EM3-000-380
A-7	S/E KNOB	S0-EM3-000-390
A-8	FRONT PANEL	S0-EM3-000-460
A-9	DECORATION PLATE	S0-EM4-001-590
A-10	CONTROL PLATE	S0-EM3-000-450
A-11	CASSETTE DOOR	S0-EM3-000-360
A-12	LATCH	S6-D51-218-000
A-13	BRAND BADGE	S0-EM4-001-670
A-14	RATING LABEL	S0-EM4-003-420
A-15	SERIAL No. LABEL	S7-E51-159-000
A-16	COVER PLATE	S0-EM4-002-940
A-17	USER CAUTION LABEL	S2-4LH-008-000
A-18	TIMER PLATE	S0-EM4-001-520
A-19	POP LABEL	S0-EM4-003-990
A-20	CRT COVER	S0-EM2-000-170
A-21	COVER STOPPER (R/U)	S0-EM3-000-400
A-22	COVER STOPPER (L/U)	S0-EM3-000-410
A-23	COVER STOPPER (UNDER)	S0-EM4-001-470
	ACCESSORY	
X-1	REMOCON UNIT	S1-813-553-000
X-2	BATTERY	S1-790-849-000 or S1-813-020-000
X-3	MATCHING ADAPTOR	S1-780-283-000 or S1-780-213-000
S-1	CARTON	S0-EM4-003-450
S-2	STYROFORM TOP	S0-EM1-000-280
S-3	STYROFORM BOTTOM	S0-EM1-000-290
S-4	SET BAG	S3-2EH-037-000
S-5	OWNER'S MANUAL	S0-EMN-001-050
S-6	SIDE PAD	S3-2FH-037-000
S-7	POLYETHYLENE BAG	SZ-325-350-000
S-8	VHF ANTENNA	S2-7AH-006-000 or S2-7AH-008-000
S-9	CARTON LABEL	S0-EM4-002-360
S-10	FACILITY LIST	S0-RMN-000-940
S-11	HANDLE	S2-1HH-007-000
B-1	PCB HOLDER	S0-EM1-000-120
B-2	TENSION SPRING	S2-6WH-006-000
B-3	CRT MOUNTING SCREW	S8-A00-083-000
B-4	CRT SPACER A	S2-3WE-079-000
B-5	DOOR SPRING	S0-EM4-001-050
B-6	DOOR CUSHION	S0-EM4-001-060
B-7	CLOTH	S2-4WE-420-000
L-1	TAP TIGHT SCREW M3x8	SG-LMP-308-000
L-2	TAP TIGHT SCREW M3x6	SG-PMS-306-000
L-3	TAP TIGHT SCREW M3x8	SG-BMB-308-000
L-4	TAP TIGHT SCREW M3x16	SG-BMB-316-000
L-5	TAPPING SCREW M3.5x14	SD-BK1-T14-000
	A TIGHT SCREW M4x14	SD-BM1-414-000
L-6	TAP TIGHT SCREW M3x8	SG-PMP-308-000
L-7	TAP TIGHT SCREW M3x12	SG-BKP-312-000
L-8	TAP TIGHT SCREW M4x18	SG-BKP-418-000
L-9	PLAIN WASHER ϕ3.2xϕ12xt0.8	SW-PM3-128-000

MECHANICAL PARTS LIST

Ref. No.	Description	Parts No.
A-1	FRONT CABINET	SO-EM0-000-050
A-2	MOUNTING BOSS A	SO-EM4-000-770
A-3	REAR CABINET	SO-EM0-000-020
A-4	CONTROL DOOR	SO-EM2-000-160
A-5	TIMER WINDOW	SO-EM3-000-370
A-6	POWER KNOB	SO-EM3-000-380
A-7	S/E KNOB	SO-EM3-000-390
A-8	FRONT PANEL	SO-EM4-001-260
A-9	DECORATION PLATE	SO-EM4-001-590
A-10	CONTROL PLATE	SO-EM3-001-120
A-11	CASSETTE DOOR	SO-EM3-001-130
A-12	LATCH	S6-D51-218-000
A-13	BRAND BADGE	SO-EM4-001-670
A-14	RATING LABEL	SO-EM4-003-410
A-15	SERIAL No. LABEL	S7-E51-159-000
A-16	COVER PLATE	SO-EM4-000-960
A-17	USER CAUTION LABEL	S2-4LH-008-000
A-18	TIMER PLATE	SO-EM4-001-520
A-19	POP LABEL	SO-EM4-004-000
A-20	CRT COVER	SO-EM2-000-170
A-21	COVER STOPPER (R/U)	SO-EM3-000-400
A-22	COVER STOPPER (L/U)	SO-EM3-000-410
A-23	COVER STOPPER (UNDER)	SO-EM4-001-470
B-1	PCB HOLDER	SO-EM1-000-120
B-2	TENSION SPRING	S2-6WH-006-000
B-3	CRT MOUNTING SCREW	S8-A00-083-000
B-4	CRT SPACER A	S2-3WE-079-000
B-5	DOOR SPRING	SO-EM4-001-050
B-6	DOOR CUSHION	SO-EM4-001-060
B-7	CLOTH	S2-4WE-420-000
L-1	TAP TIGHT SCREW M3x8	SG-LMP-308-000
L-2	TAP TIGHT SCREW M3x6	SG-PMS-306-000
L-3	TAP TIGHT SCREW M3x8	SG-BMB-308-000
L-4	TAP TIGHT SCREW M3x16	SG-BMB-316-000
L-5	TAPPING SCREW M3.5x14	SD-BK1-T14-000
	A TIGHT SCREW M4x14	SD-BM1-414-000
L-6	TAP TIGHT SCREW M3x8	SG-PMP-308-000
L-7	TAP TIGHT SCREW M3x12	SG-BKP-312-000
L-8	TAP TIGHT SCREW M4x18	SG-BKP-318-000
L-9	PLAIN WASHER φ3.2xφ12xt0.8	SW-PM3-128-000
	ACCESSORY	
X-1	REMOCON UNIT	S1-813-553-000
X-2	BATTERY	S1-790-849-000 or S1-813-020-000
X-3	MATCHING ADAPTOR	S1-780-283-000 or S1-780-213-000
S-1	CARTON	SO-EM4-003-400
S-2	STYROFORM TOP	SO-EM1-000-280
S-3	STYROFORM BOTTOM	SO-EM1-000-290
S-4	SET BAG	S3-2EH-037-000
S-5	OWNER'S MANUAL	SO-EMN-001-040
S-6	SIDE PAD	SO-EM4-003-980
S-7	POLYETHYLENE BAG	SZ-325-350-000
S-8	VHF ANTENNA	S2-7AH-006-000 or S2-7AH-008-000
S-9	CARTON LABEL	SO-EM4-002-360
S-10	FACILITY LIST	SO-RMN-000-940
S-11	HANDLE	S2-1HH-007-000

10. EXPLODED VIEW (ACESSORY AND PACKING)

(VX-T1000MKIIAE/KE/SH MODEL)



11. ELECTRICAL PARTS LIST (VX-T1000MKIISH/KE MODEL)

Ref. No.	Part No.	Description
		MAIN PCB
R29	S5-34A-153-000	*METAL RES. 15K OHM 1W J
R30	S5-34A-153-000	*METAL RES. 15K OHM 1W J
R31	S5-34A-153-000	*METAL RES. 15K OHM 1W J
Q3	SQ-SC2-228-DAE-MP0 or SQ-SC2-228-EAE-MP0	TRANSISTOR 2SC2228 (D)-AE-MP
Q4	SQ-SC2-228-DAE-MP0 or SQ-SC2-228-EAE-MP0	TRANSISTOR 2SC2228 (D)-AE-MP
Q5	SQ-SC2-228-DAE-MP0 or SQ-SC2-228-EAE-MP0	TRANSISTOR 2SC2228 (D)-AE-MP
VR1	S2-38J-281-000 or S1-38A-957-000	*POTENTIOMETER 5KB *POTENTIOMETER 4.7KB
VR2	S1-38A-953-000 or S2-38J-278-000	*POTENTIOMETER 1KB
VR3	S2-38J-281-000 or S1-38A-957-000	*POTENTIOMETER 5KB *POTENTIOMETER 4.7KB
VR4	S1-38A-953-000 or S2-38J-278-000	*POTENTIOMETER 1KB
VR5	S2-38J-281-000 or S1-38A-957-000	*POTENTIOMETER 5KB *POTENTIOMETER 4.7KB
CN11	S1-780-218-000 or S1-780-080-000	CRT SOCKET CRT SOCKET
R9	S5-363-109-000 or S5-368-109-000	*FUSE RES. 1 OHM 1W
R10	S5-363-229-000 or S5-368-229-000	*FUSE RES. 2.2 OHM 1W
R11	S5-363-229-000 or S5-368-229-000	*FUSE RES. 2.2 OHM 1W
R21	S5-34A-561-000	*METAL RES. 560 OHM 1W J
R102	S5-34A-330-000	*METAL RES. 33 OHM 1W J
R118	S5-34B-150-000	*METAL RES. 15 OHM 2W J
L6	S1-13M-872-000	*CASING COIL
L7	S1-13M-872-000	*CASING COIL
L8	S1-13M-855-000	*CASING COIL
L9	S2-165-120-T00 or S2-162-120-T00	*INDUCTOR 12uH-K-AXT *INDUCTOR 12uH
L10	S1-13M-873-000	*CASING COIL
L11	S2-165-330-T00 or S2-162-330-T00	*INDUCTOR 33uH-K *INDUCTOR 33uH
L12	S1-13M-871-000	*CASING COIL
L13	S1-17E-504-000	*LINE FILTER
L14	S2-165-101-T00 or S2-162-101-T00	*INDUCTOR 100uH-K-AXT *INDUCTOR 100uH
L16	S1-17M-511-000	*POT TYPE COIL 47uF
L20	S2-165-390-T00 or S2-162-390-T00	*INDUCTOR 39uH-K-AXT *INDUCTOR 39uH
D1	SM-PL5-209-000	DIODE GP10-4003
D2	S1-SS1-30T-000	DIODE 1SS130
D3	SR-GP1-5KL-000	DIODE RGP15KL
D4	SR-GP1-5KL-000	DIODE RGP15KL
D5	SR-GP1-5KL-000	DIODE RGP15KL
D6	SM-TZ2-0B0-000	ZENER DIODE MTZ20B
D7	SM-TZ9.1-BT0-000	ZENER DIODE MTZ9.1B
D11	SM-TZ7.5-BT0-000	ZENER DIODE MTZ7.5B-T77
D12	SR-GP3-0GL-000	DIODE RGP30GL
D13	SG-P15-ML0-000	DIODE GP15ML
D14	SG-P15-ML0-000	DIODE GP15ML
D15	SG-P15-ML0-000	DIODE GP15ML

Ref. No.	Part No.	Description
D16	SG-P15-ML0-000	DIODE GP15ML
DE1	S1-13N-852-000	DELAY LINE
DE2	S1-813-554-000 or	GLASS DELAY
	S1-812-056-000	GLASS DELAY ADL-CP144
DGC1	S1-120-172-000 or	DEGAUSSING COIL
	S1-12M-172-000	
Q1	SQ-SC2-271-DAE-MP0 or	TRANSISTOR 2SC2271 (D)-AE-MP
	SQ-SC2-271-EAE-MP0	TRANSISTOR 2SC2271 (E)-AE-MP
Q2	SQ-2SD-139-7CA**	TRANSISTOR 2SD1397-CA
Q6	SQ-C18-15G-RTP-E20 or	TRANSISTOR 2SC1815 (GR)
	SQ-C18-15B-LTP-E20 or	TRANSISTOR 2SC1815 (BL)
	SQ-SC3-331-TAA-NP0 or	TRANSISTOR 2SC3331 (T)-AA-NP
	SQ-SC3-331-UAA-NP0 or	TRANSISTOR 2SC3331 (U)-AA-NP
	SQ-SC1-740-STP-QR0	TRANSISTOR 2SC1740S-TP-Q,R"
Q11	SQ-SA1-318-TAA-NP0 or	TRANSISTOR 2SA1318 (T)-AA-NP
	SQ-SA1-318-UAA-NP0 or	TRANSISTOR 2SA1318 (U)-AA-NP
	SQ-A10-15G-RTP-E20 or	TRANSISTOR 2SA1015 (GR)
	SQ-A10-15B-LTP-E20 or	TRANSISTOR 2SA1015 (BL)
	SQ-2SA-933-STP-QR0	TRANSISTOR 2SA933S-TP-Q,R"
Q12	SQ-SA1-318-TAA-NP0 or	TRANSISTOR 2SA1318 (T)-AA-NP
	SQ-SA1-318-UAA-NP0 or	TRANSISTOR 2SA1318 (U)-AA-NP
	SQ-A10-15G-RTP-E20 or	TRANSISTOR 2SA1015 (GR)
	SQ-A10-15B-LTP-E20 or	TRANSISTOR 2SA1015 (BL)
	SQ-2SA-933-STP-QR0	TRANSISTOR 2SA933S-TP-Q,R"
Q13	SQ-C18-15G-RTP-E20 or	TRANSISTOR 2SC1815 (GR)
	SQ-C18-15B-LTP-E20 or	TRANSISTOR 2SC1815 (BL)
	SQ-SC3-331-TAA-NP0 or	TRANSISTOR 2SC3331 (T)-AA-NP
	SQ-SC3-331-UAA-NP0 or	TRANSISTOR 2SC3331 (U)-AA-NP
	SQ-SC1-740-STP-QR0	TRANSISTOR 2SC1740S-TP-Q,R"
Q14	SQ-C18-15G-RTP-E20 or	TRANSISTOR 2SC1815 (GR)
	SQ-C18-15B-LTP-E20 or	TRANSISTOR 2SC1815 (BL)
	SQ-SC3-331-TAA-NP0 or	TRANSISTOR 2SC3331 (T)-AA-NP
	SQ-SC3-331-UAA-NP0 or	TRANSISTOR 2SC3331 (U)-AA-NP
	SQ-SC1-740-STP-QR0	TRANSISTOR 2SC1740S-TP-Q,R"
Q15	SQ-C18-15G-RTP-E20 or	TRANSISTOR 2SC1815 (GR)
	SQ-C18-15B-LTP-E20 or	TRANSISTOR 2SC1815 (BL)
	SQ-SC3-331-TAA-NP0 or	TRANSISTOR 2SC3331 (T)-AA-NP
	SQ-SC3-331-UAA-NP0 or	TRANSISTOR 2SC3331 (U)-AA-NP
	SQ-SC1-740-STP-QR0	TRANSISTOR 2SC1740S-TP-Q,R"
IC1	S1-4LQ-163-000	IC LA7830
IC2	S1-4L0-242-000 or	REGULATOR NJM78M12FA
	SA-N78-M12-F00	REGULATOR AN78M12F
IC3	SG-TA8-659-AN0	IC (TA8659AN)
IC4	S1-4LQ-203-000	IC (STK7348)
CF1	S1-811-390-000	*X'TAL 3.58MHZ
CF2	S1-811-387-000	*X'TAL 4.43MHZ
CF3	S1-813-552-000	*CERAMIC RESONATOR CBS503F2
CRT1	S1-813-046-000 or	BRAUNTUBE A34JRH61X22 (Y)
	S1-812-341-000 or	BRAUNTUBE 37OKRB22-TC09 (SPYB)
	S1-812-724-000	BRAUNTUBE 37GDA85X-TC01 (P)
F1	S1-790-998-000 or	FUSE T4A/250V
	S1-790-487-000	
FH1	S1-790-424-000	FUSE HOLDER
FH2	S1-790-424-000	FUSE HOLDER
PS1	S5-790-117-000	POSISTOR
SW1	S1-621-639-000 or	SLIDE SWITCH
	S1-621-654-000	

Ref. No.	Part No.	Description
T1	S1-150-325-000	HORIZONTAL DRIVE TRANS
T2	S1-813-482-000 or S1-810-951-000	FRY BACK TRANS
T3	S1-15E-475-000	SWITCHING POWER TRANS
VR6	S1-38J-932-000 or	*POTENTIOMETER KVSF637AO-B102
	S6-38A-102-000 or	*POTENTIOMETER 1KB
	S1-380-706-000	*POTENTIOMETER 1KB
VR8	S1-38J-940-000 or	*POTENTIOMETER KVSF637AO-B104
	S6-38A-104-000 or	*POTENTIOMETER 100KB
	S1-380-716-000	*POYENTIOMETER 100KB
		EARPHONE PCB
SP1	S1-52N-589-000 or S1-520-568-000 or S1-520-589-000 or S1-520-614-000	SPEAKER
		CONTROL PCB
VR9	S5-39A-874-000 or S5-39N-874-000	*ROTARY VOLUME 1KOHM B
VR10	S5-39A-875-000 or S5-39N-875-000	*ROTARY VOLUME 10KOHM B
VR11	S5-39A-874-000 or S5-39N-875-000	*ROTARY VOLUME 10KOHM B
VR12	S5-39A-874-000 or S5-39N-874-000	*ROTARY VOLUME 1KOHM B
VR13	S1-38J-937-000 or	*POTENTIOMETER KVSF637AO-B203
	S1-380-709-000	*POTENTIOMETER 20KB

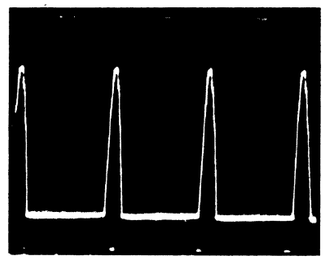
ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
		MAIN PCB
R29	S5-34A-153-000	*METAL RES. 15K ohm 1W J
R30	S5-34A-153-000	*METAL RES. 15K ohm 1W J
R31	S5-34A-153-000	*METAL RES. 15K ohm 1W J
Q3	QSC2228DAEMP or QSC2228EAEMP	TRANSISTOR 2SC2228(D)-EA-MP
Q4	QSC2228DAEMP or QSC2228EAEMP	TRANSISTOR 2SC2228(D)-EA-MP
Q5	QSC2228DAEMP or QSC2228EAEMP	TRANSISTOR 2SC2228(D)-EA-MP
VR1	S2-38J-281-000 or	*POTENTIOMETER SBK
	S1-38A-957-000	*POTENTIOMETER 4R7KB
VR2	S2-38J-278-000 or	*POTENTIOMETER 1KB
	S1-38A-953-000	*POTENTIOMETER 1KB
VR3	S2-38J-281-000 or	*POTENTIOMETER SBK
	S1-38A-957-000	*POTENTIOMETER 4R7KB
VR4	S2-38J-278-000 or	*POTENTIOMETER 1KB
	S1-38A-953-000	*POTENTIOMETER 1KB
VR5	S2-38J-281-000 or	*POTENTIOMETER SBK
	S1-38A-957-000	*POTENTIOMETER 4R7KB
L4	S2-165-330-T00 or	*INDUCTOR 100uH-K-AXT
	S2-162-330-T00	*INDUCTOR 100uH
CN11	S1-780-218- 000 or	CRT SOCKET
	S1-780-080-000	
R21	S5-34A-561-000	*METAL RES. 560 ohm 1W J
R118	S5-34B-150-000	*METAL RES. 15 ohm 1W J
L8	S1-13M-855-000	*CASING COIL
L9	S2-165-100-T00 or	*INDUCTOR 10uH-K-AXT
	S2-162-100-T00	*INDUCTOR 10uH
L11	S2-165-330-T00 or	*INDUCTOR 33uH-K
	S2-162-330-T00	*INDUCTOR 33uH
L13	S1-17E-504-000	*LINE FILTER
L16	S1-17M-511-000	*POT TYPE COIL 47uH
D1	SM-PL5-209-000	DIODE GP10-4003
D2	S1-SS1-30T-000	DIODE
D3	SR-GP1-5KL-000	DIODE RGP15K
D4	SR-GP1-5KL-000	DIODE RGP15K
D5	SR-GP1-5KL-000	DIODE RGP15K
D6	SM-TZ2-0BT-000	ZENER DIODE
D7	SM-TZ9.1-BT0-000	ZENER DIODE
D12	SR-GP3-0GL-000	DIODE RGP30GL
D13	SG-P15-ML0-000	DIODE GP10-4003
D14	SG-P15-ML0-000	DIODE
D15	SG-P15-ML0-000	DIODE
D16	SG-P15-ML0-000	DIODE
Q1	SQSC2271DAEMP or	TRANSISTOR 2SC2271(D)-AE-MP
	SQ-SC2-271-EAE-MP0	TRANSISTOR 2SC2271(E)-AE-MP
Q2	SQ-2SD-139-7CA**	TRANSISTOR
Q15	SQ-C18-15G-RTP-E20	TRANSISTOR 2SC1815(GR)
	SQ-C18-15B-LTP-E20 or	TRANSISTOR 2SC1815(BL)
	SQ-SC3-331-TAA-NP0 or	TRANSISTOR 2SC3331(T)-AA-NP
	SQ-SC3-331-UAA-NP0or	TRANSISTOR 2SC3331(U)-AA-NP
	SQ-C17-40S-DCT-PQ0 or	TRANSISTOR 2SC1740S-TP-Q
	SQ-C17-40S-DCT-PR0	TRANSISTOR 2SC1740S-TP-QR

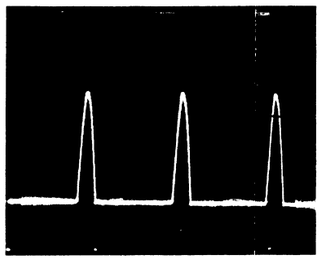
Ref. No.	Part No.	Description
IC1	S1-4LQ-163-000	IC LA7830
IC2	S1-4L0-242-000 or	REGULATOR NJM78M12FA
	SA-N78-M12-F00	REGULATOR AN78M12F
IC3	SG-TA8-718-N00	IC (TA8718N)
IC4	S1-4LQ-203-000	IC(STK7348)
CRT1	S1-813-046-000 or	BRAUN TUBE A34JRH61X22(Y)
	S1-812-341-000 or	BRAUN TUBE 370KRB22-TC09
	S1-812-724-000	BRAUN TUBE 37GDA85X-TC01
DE1	S1-13N-852-000	DELAY LINE
DE2	S1-813-554-000 or	GLASS DELAY
	S1-812-056-000	GLASS DELAY ADL-CP144
DGC1	S1-120-172-000 or	DEGAUSSING COIL
	S1-12M-172-000	
FH 1	S1-790-424-000	FUSE HOLDER
FH 2	S1-790-424-000	FUSE HOLDER
F1	S1-790-998-000or	FUSE T4.00A/250V
	S1-790-487-000	
	S1-621-654-000	
PS1	S5-790-117-000	POSISTOR
SW1	S1-621-639-000 or	SLIDE SWITCH
VR6	S1-38J-932-000or	*POTENTIOMETER KVSF637AO-B102
	S6-38A-102-000 or	*POTENTIOMETER 1KB
	S1-380-706-000	
VR8	S1-38J-940-000or	*POTENTIOMETER KVSF637AO-B104
	S6-38A-104-000 or	*POTENTIOMETER 100KB
	S1-380-716-000	
T1	S1-150-325-000	HORIZONTAL DRIVE TRANS
T2	S1-813-482-000 or	FRY BACK TRANS
	S1-810-951-000	
T3	S1-15E-475-000	SWITCHING POWER TRANS
		EARPHONE PCB
SP1	S1-52N-589-000 or	SPEAKER
	S1-520-568-000 or	SPEAKER
	S1-520-589-000 or	SPEAKER
	S1-520-614-000	SPEAKER
		CONTROL PCB
VR9	S5-39A-874-000 or	*ROTARY VOLUME 1KOHM B
	S5-39N-874-000	
VR10	S5-39A-875-000	*ROTARY VOLUME 10KOHM B
	S5-39N-875-000	
VR11	S5-39A-875-000 or	*ROTARY VOLUME 10KOHM B
	S5-39N-875-000	
VR12	S5-39A-874-000 or	*ROTARY VOLUME 1KOHM B
	S5-39N-874-000	
VR13	S1-38J-934-000or	*POTENTIOMETER KVSF637AO-B302
	S1-380-703-000 or	*POTENTIOMETER 3KB
	S6-38A-332-000	*POTENTIOMETER 3.3KB

12. WAVE FORMS (VX-T1000MKIIAE/KE/SH MODEL)

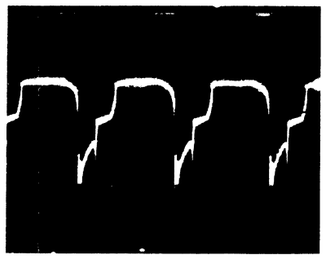
POINT=A
1DIV=20ms,2V



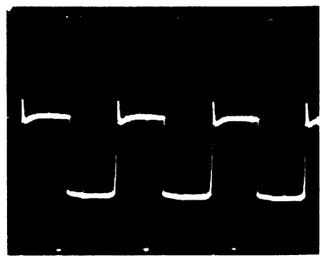
POINT=B
1DIV=20µs,5V



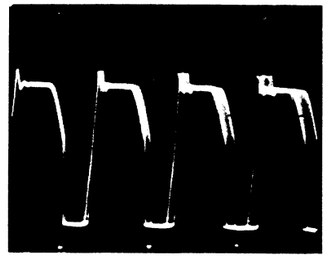
POINT=C
1DIV=20µs,250V



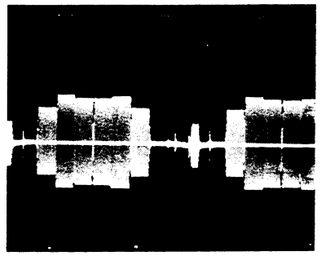
POINT=D
1DIV=20µs,1V



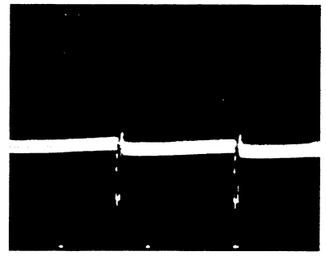
POINT=E
1DIV=20µs,50V



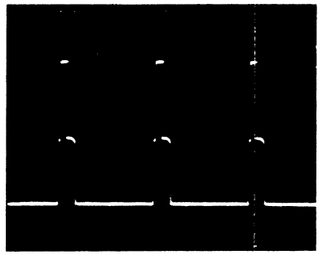
POINT=F
1DIV=10µs,100V



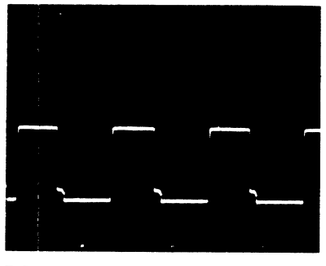
POINT=G
1DIV=10µs,100mV



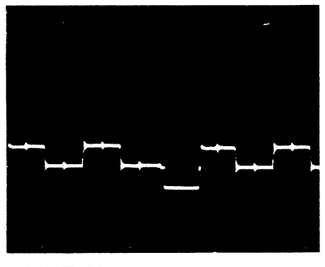
POINT=H
1DIV=5ms,0.5V



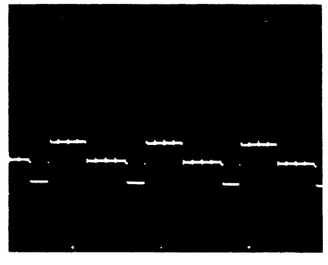
POINT=I
1DIV=20µs,2V



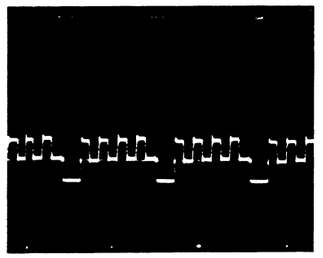
POINT=J
1DIV=20µs,2V



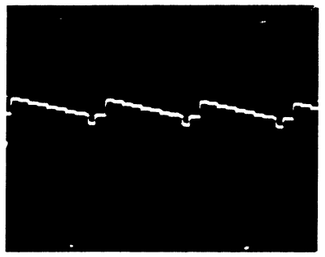
POINT=K
1DIV=10µs,2V



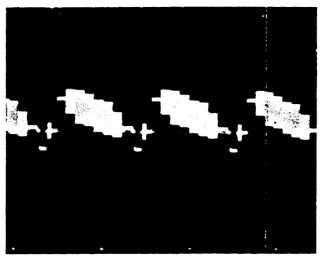
POINT=L
1DIV=20µs,2V



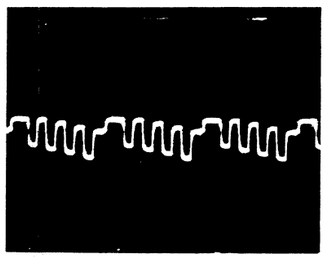
POINT=M
1DIV=20µs,2V



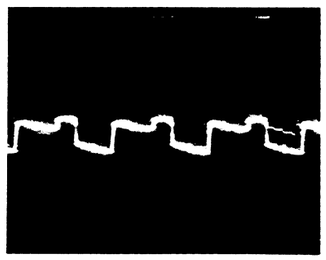
POINT=N
1DIV=20µs,50V



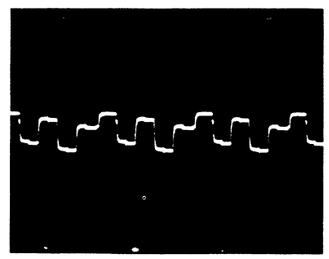
POINT=O
1DIV=20µs,1V



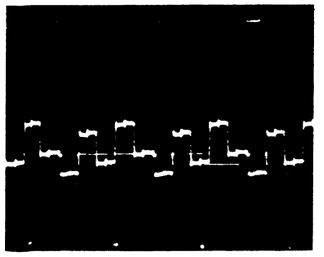
POINT=P
1DIV=20µs,50V



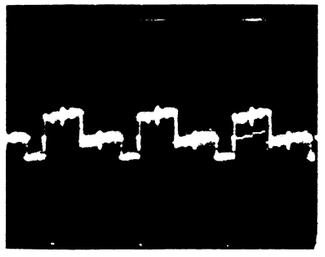
POINT=Q
1DIV=20µs,2V



POINT=R
1DIV=20µs,50V

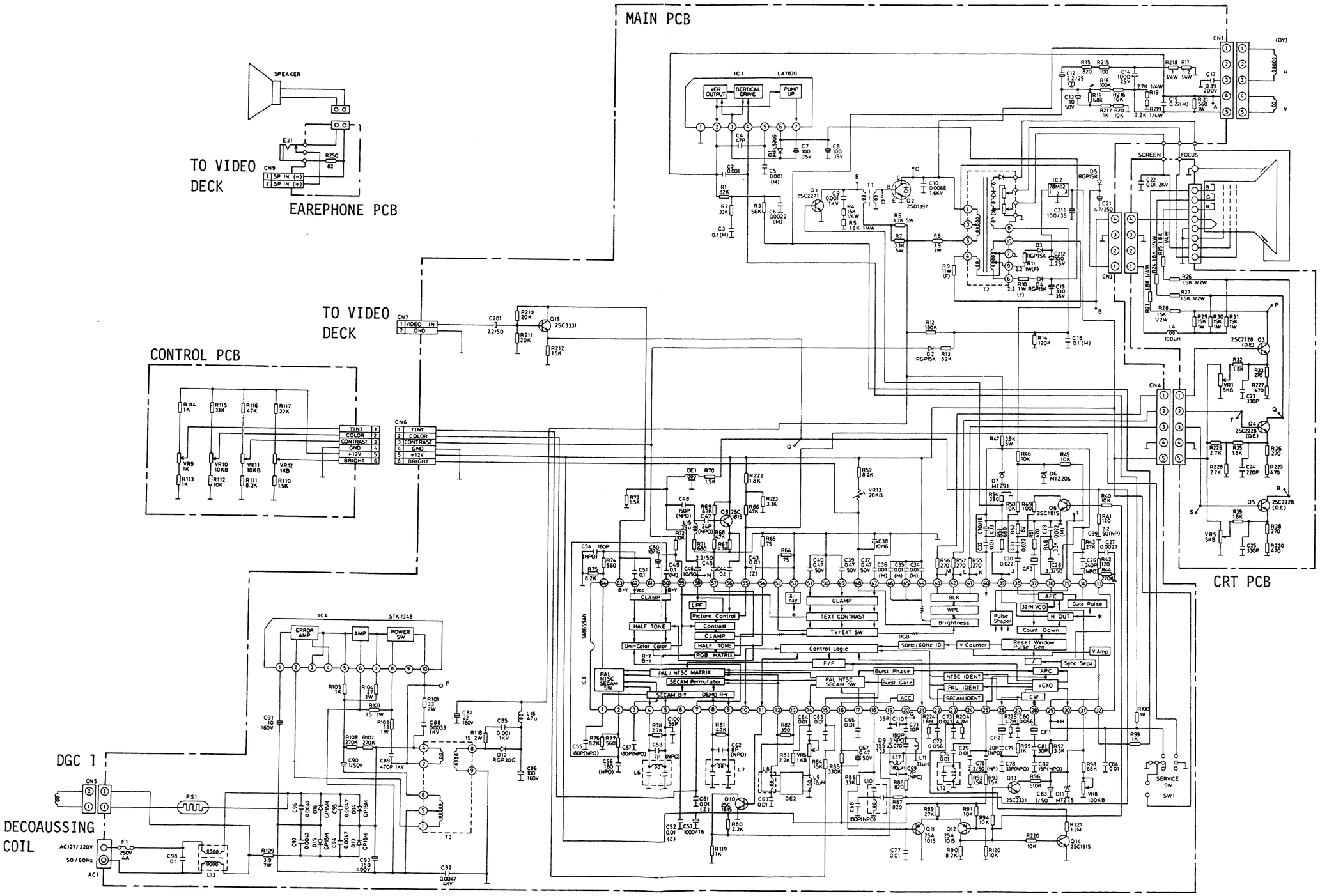
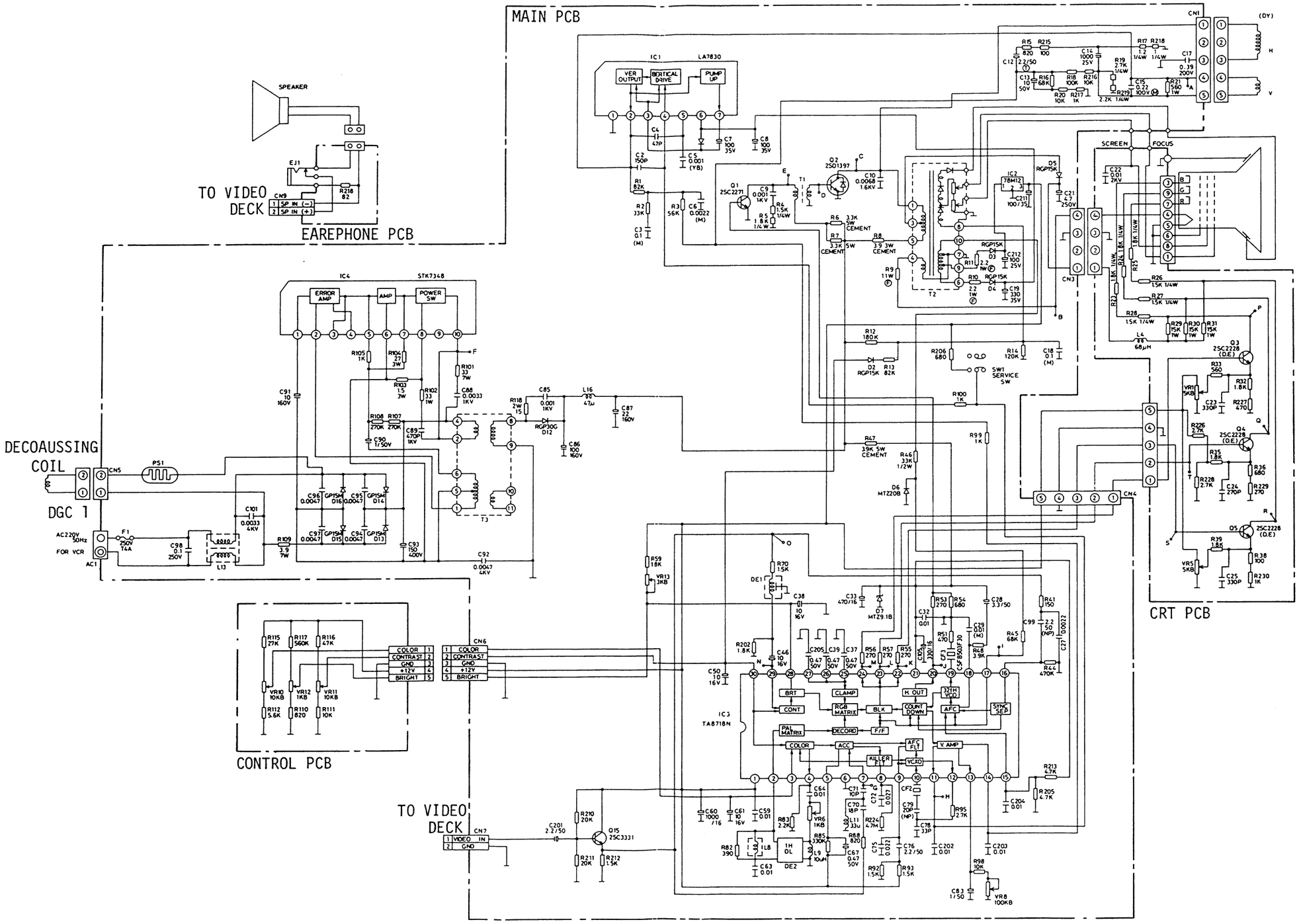


POINT=S
1DIV=20µs,2V



POINT=T
1DIV=20µs,2V

13. SCHEMATIC DIAGRAM (VX-T1000MKIISH/KE MODEL)



SCHEMATIC DIAGRAM (VX-T1000MKIIAE MODEL)